

C. F. EHMSSEN.
TYPE WRITING MACHINE.
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936,240.

Patented Oct. 5, 1909.

Fig. 1.

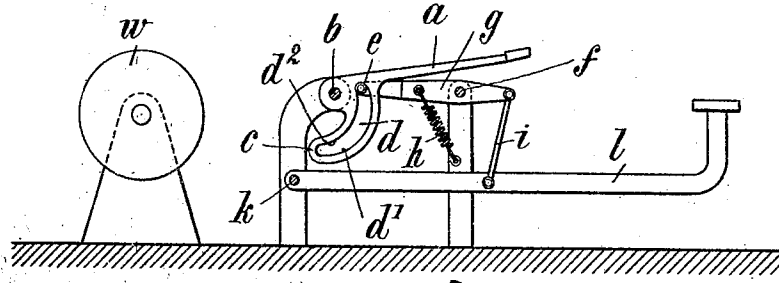


Fig. 2.

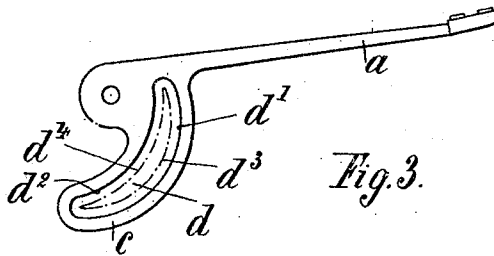
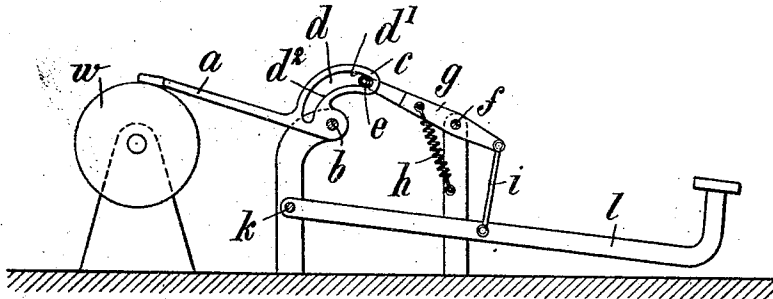


Fig. 3.

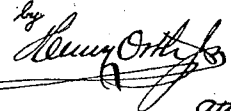
Witnesses.

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TYPE-WRITING MACHINE.

936,240.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CARL F. EHMSSEN, a subject of the German Emperor, and resident of Hamburg, in the German Empire, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to that kind of mechanism for actuating the type levers in typewriting machines, in which a pin or anti-friction roller carried by the key lever (or an intermediate lever connected to the key lever) engages in a guide slot in the corresponding type lever and is guided by the surfaces of the said slot so that when the pin moves upward the said pin, in sliding between the slot surfaces, imparts to the type lever the movement whereby the latter is caused to strike the paper cylinder, after which the pin in moving back between the said slot surfaces, returns the type lever into its normal position of rest.

In the hereinabove described mechanism in which the operative surfaces of the guide slot are parallel to each other, the type lever is caused to move backward and forward, that is to say, into and out of contact with the paper cylinder with equal velocities. The consequence of this is that the type lever in its return movement is liable to meet and interfere with the type lever that is operated next in succession. A further drawback is that the pin is liable to get twisted or jammed in its guide slot so that the type lever is rendered hard to work.

Now the present invention has for its object to remove the hereinbefore mentioned drawbacks, and to this end, it consists in making the guide slot substantially of crescent or sickle shape whereby the center of the pin in making its forward and backward movements describes relatively to the curved sides or surfaces of the crescent or sickle-shaped slot, a closed figure composed of the two sides of a crescent. This peculiar shape of the guide slot is designed for the purpose of causing the pin to move along one surface of the slot in the upward movement of the intermediate lever and along the other surface of the slot in the downward movement of the said lever. By this means not only is the friction diminished but also the liability of the pin jamming in the guide slot is obviated. Further, as a result of the different curvatures of the slot surfaces, the

return movement of the type lever into its position of rest takes place with greater rapidity than the movement of the said lever into its writing position, so that the returning type lever moves more quickly out of the path of the next actuated type lever, and thus interference of one with the other is obviated.

One form of this invention is illustrated diagrammatically in the accompanying drawings in which,

Figure 1 is a side elevation of the type lever and of the mechanism actuating the same, the parts being shown in the position of rest; Fig. 2 is a side elevation showing the parts with the type lever in the writing position; and Fig. 3 is a side elevation on a larger scale of the type lever with its guide slot, shown separately.

The type lever, *a*, is pivoted at *b* and has an enlargement, *c*, formed with a sickle shaped guide slot, *d*, in which engages a pin, *e*, (provided with an anti-friction roller) projecting from the intermediate lever, *g*, that is fulcrumed at *f*. The lever, *g*, is acted upon by a spring, *h*, that has a tendency to keep the lever, *g*, and the type lever, *a*, in the position of rest shown in Fig. 1. The lever, *g*, is connected pivotally at its other end by means of a rod, *i*, to the key lever, *l*, which is fulcrumed at *k* to a part of the framework of the machine.

When the key lever, *l*, is depressed the intermediate lever, *g*, is tilted up at its rear end, whereby the pin, *e*, (which slides only along the front surface, *d'*, (Fig. 3) of the slot, *d*) imparts an oscillation in the rearward direction to the type lever, *a*, which is thus caused to strike the paper cylinder, *w*, as shown in Fig. 2. When pressure ceases to be exerted on the key lever, *l*, the intermediate lever, *g*, is pulled by the spring, *h*, back again into the position of rest (Fig. 1). In this movement the pin, *e*, passes from the surface, *d'*, on to the shorter surface, *d''*, of the slot (Fig. 3) and as it now acts only upon this shorter surface, its movement causes the type lever to return with a greater velocity into its position of rest.

The sickle shape shown in Fig. 3 of the slot, *d*, in the enlargement, *c*, of the type lever, is designed to cause the forward and backward oscillatory movements of the type lever to take place with different velocities; to enable the pin, *e*, to pass from the slot

surface, d' , on the slot surface, d^2 , and vice versa; and to insure that it shall slide only along one of these slot surfaces during one and the same oscillatory movement.

- 5 The dotted crescent, d^3 d^4 , shown inside the sickle shaped slot in Fig. 3, represents the path described by the center of the pin, e , relatively to the slot surfaces, d' d^2 , in the backward and forward movements of the
10 type lever.

I claim:

1. A pivotal type-bar having a guide slot for its operating member, the walls of the slot being eccentric to each other.
- 15 2. A pivoted type-bar having a guide slot for its operating member, the walls of the slot being eccentric to the pivot and to each other.
3. A pivotal type-bar having a guide slot
20 for its operating member closed at each end, the side walls of said slot being eccentric to each other.
4. The combination with a key lever, of a pivoted type-bar provided with a guide

slot closed at both ends and having its sides 25 eccentric to each other, and an actuating member operable by the key lever to alternately engage said sides.

5. The combination with a key lever, of a pivoted type-bar provided with an enlarged 30 portion having a slot therein formed with sides eccentric to each other and to the pivot, a pin mounted in said slot, and means to impart a reciprocatory movement to the pin whereby the pin will alternately engage said 35 sides.

6. The combination with a key-lever, of a pivoted type-bar provided with a lateral 40 portion having a slot therein closed at both ends and formed with sides eccentric to each other and to the pivot, an intermediate lever pivotally connected at one end to the key lever and a pin on the other end of the intermediate lever taking into said slot.

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Witnesses:

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