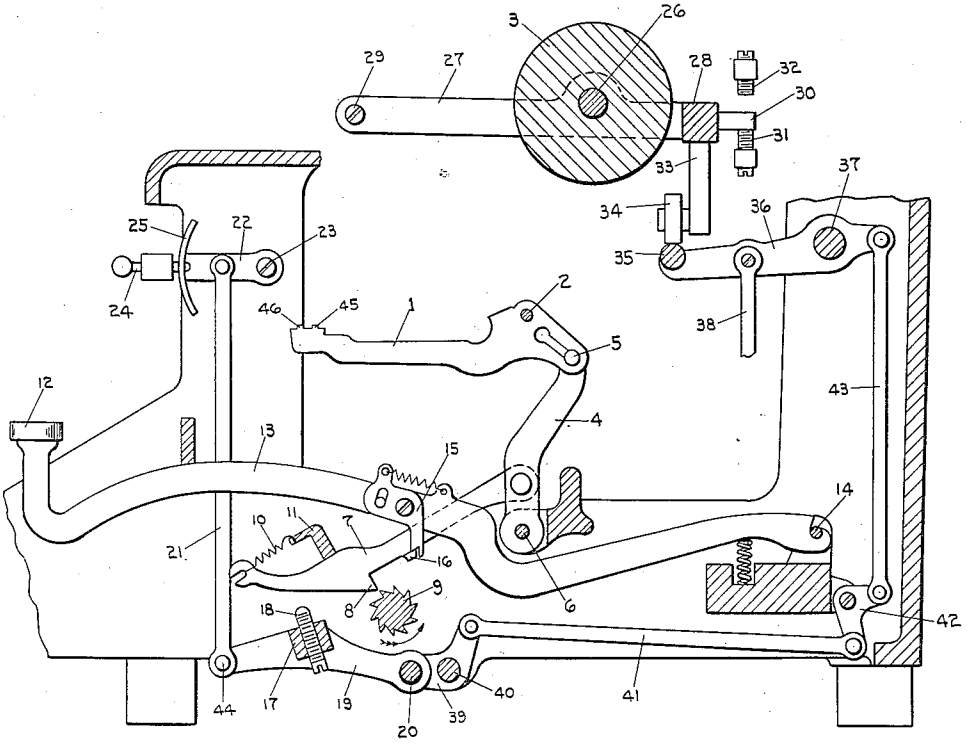
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TYPEWRITING MACHINE

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TYPEWRITING MACHINE

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In the operation of a typewriter it is necessary, if uniform work is desired, that the keys be struck with greater force when writing capitals than when writing small letters, owing to the fact that the capitals have a greater superficial area. In operating the machine by hand a skilful operator can do this, but in a power-driven typewriter, as usually constructed, the power applied to each type-bar or corresponding part is the same regardless of the position of the case-shift.

The object of the present invention is to provide a power-operated typewriter with means for adjusting automatically the force applied to the type mechanism so that capital letters shall always be struck with more force than the corresponding small letters. This object is attained by using power mechanism provided with means for adjusting the length or the speed of the impulse imparted to each type mechanism, and by connecting the case-shift mechanism of the machine with such adjusting means so as to operate the latter automatically at each case-shift movement.

The accompanying drawing is a fragmentary vertical sectional view of a power-operated typewriter embodying the present invention.

The invention may be embodied in machines having power-mechanism of various types, but it is shown and described, for illustration, as embodied in a machine having mechanism of the type disclosed in United States Letters Patent No. 1,614,475 to O. A. Hokanson. Each type-bar 1 is mounted on a pivot-rod 2 and swings into engagement with the paper on the usual platen roller 3. The type bar is slotted to receive a pin 5 on the upper end of a lever 4, which is pivoted, at 6, on the frame of the machine. To each lever 4 is pivoted a hook-like actuator 7, adapted to cooperate with a shaft 9 which is rotated constantly by connection with a suitable motor. The shaft is grooved to provide a series of projections or teeth adapted to engage a lug 8 on the actuator. A spring 10, attached to the actuator, normally holds the latter in raised position, against a frame-member 11, out of engagement with the power-shaft 9.

The power mechanism is thrown into operation by a key 12, carried by a key lever 13 which is pivoted at 14. When the key is depressed a trip 15, carried by the key lever, presses against a lug 16 on the actuator 7, thus depressing the actuator so that its lug 8 is engaged by one of the teeth on the power shaft 9. The rotation of the shaft then pulls the actuator forwardly, causing the type-bar to swing upwardly.

The movement of the actuator is controlled by means of a trip in the form of a screw 18, which is held in such position that it engages the bevelled lower surface of the actuator, and deflects it upwardly and out of engagement with the power shaft. The spring 10 then retracts the actuator to its original position.

The screws 18, of which there is one for each actuator, are carried by a transverse bar 17, which is supported at its ends by levers 19, of which only one is shown. These levers are pivoted upon a rod 20 which, in turn, is carried by levers 39, of which one only is shown. The levers 39 are connected by a rock-shaft 40, which is journalled on the frame of the machine. One of the levers 19 is connected, by a link 21, with a hand lever 22 pivoted at 23 on the frame and the hand lever carries a detent 24 cooperative with a sector 25.

Assuming the rock shaft 40 to be stationary, a movement of the hand lever up or down will change the height of the bar 17 and the trip screws 18, thus affecting the adjustment of all the power units simultaneously. The several screws 18 may be adjusted separately, to adjust the movements of the individual type-mechanisms according to the nature of the characters carried thereby.

The mechanism so far described operates in the usual manner of machines of this type, and the force of the blow delivered by any type-bar depends upon the distance through which the actuator remains in engagement with the power shaft, this distance being controlled by the height of the corresponding trip screw 18.

The machine is shown as provided with a platen which is moved vertically to cause a change between upper-case and lower-case characters. The platen is carried by a shaft 26 journalled in a frame consisting of side-levers 27 and a cross-bar 28. This frame is pivoted at 29 on the carriage (not shown). It is supported by a depending arm 33 carrying a roller 34 which rests on a rail 35. The rail is carried by levers 36, of which only one is shown, carried by a rock-shaft 37 which is pivoted on the frame of the machine. The case-shift movements of the platen are limited by the usual stop lug 30 playing between stop screws 31 and 32. These parts for supporting and moving the platen are shown somewhat diagrammatically, as their precise form and construction are not essential to the invention. It will be understood that case-shifting movements are imparted to the platen by rocking the levers 36 and the rock-shaft 37, and this may be done by any ordinary or suitable means, either manual or power-operated, such means being connected with one of the levers 36, as suggested by the upper end of a rod 38 shown in the drawing. When the platen is in the lower position shown the small or "lower case" character 45 on each type bar is effective, while the upward shift of the platen causes the capital or "upper case" character 46 to be effective.

The novel feature of the invention is embodied in connections between the case-shift mechanism, just described, and the actuator-trip mechanism. For this purpose one or both of the levers 39 is connected, by a rod 41, with a bell-crank lever 42, pivoted on the frame, and a rod 43 connects the lever 42 with a rearwardly extending arm on one of the shift levers 36.

In the position of the parts which is shown the levers 39 hold the trip bar 17 and screws 18 in a relatively high position, so that the actuators have a relatively short engagement with the power shaft. When the shift levers are moved to upper-case position, however, the connections just described cause the lever 39 to swing in a counter clockwise direction, so as to lower the rear ends of the levers 19, the levers swinging about the pivot 44 which connects one of them with the rod 21. This movement lowers the trip bar 17, so that all of the screws 18 are lowered. The result is to permit a longer engagement between the power shaft and whichever one of the actuators may be thrown into operation by the depression of the corresponding key. The longer engagement of the power mechanism causes greater acceleration to be imparted to the type bar, so that the character strikes the platen with greater force.

The invention claimed is:

1. In a typewriter, the combination, with type mechanism, case-shift mechanism, and with power mechanism comprising a power-driven rotary toothed member, an actuator connected with the type mechanism and adapted to engage and be moved by said toothed member, key-controlled means for initiating the engagement of said actuator with the toothed member, and a trip member for disengaging the actuator from the toothed member, of means connecting the case-shift mechanism and said trip member and acting, in consequence of a case-shift movement, to change the position of the trip member so as to change the period of engagement of the actuator with the toothed member.

2. In a typewriting machine, the combination of a shiftable platen, type bars movable into engagement therewith, upper and lower case types on said type bars, a power driven shaft, key controlled means for operatively connecting said type bars with said shaft to be operated thereby, means for disconnecting said key controlled means from said shaft, and means for changing the position of said disconnecting means when the platen is shifted.

3. In a typewriting machine, the combination of a shiftable platen, type bars movable into engagement therewith, upper and lower case types on said type bars, a power driven shaft, actuators operatively connected with said type bars, key controlled means for moving said actuators into operative engagement with said power driven shaft, adjustable means in the path of each of said actuators for disengaging it from the power driven shaft, and means for changing the point of engagement of said actuators with the adjustable means when the platen is shifted.

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