Sept. 19, 1933. G. TAUSCHEK 1,927,761

POWER DRIVE FOR TYPEWRITERS

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Fig. 1.

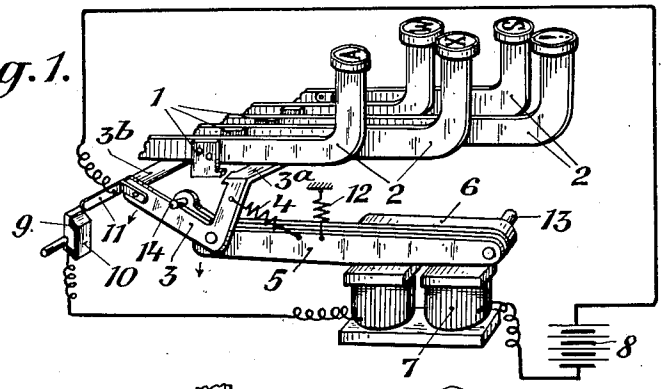


Fig. 2.

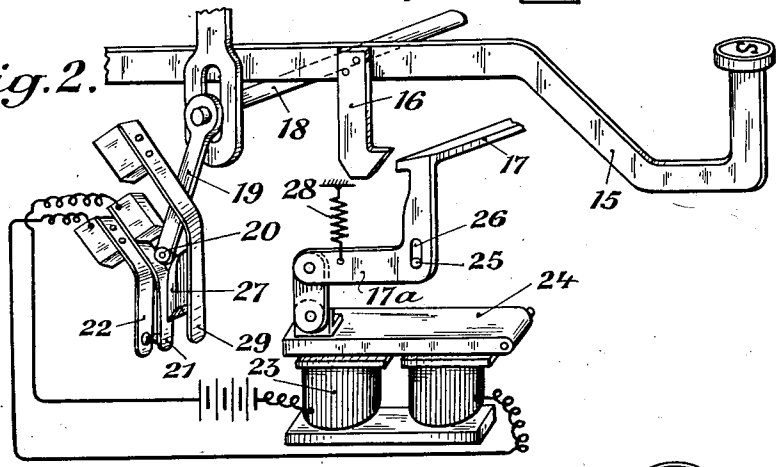
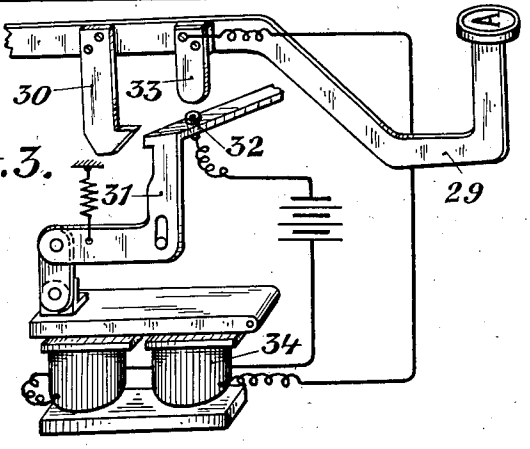


Fig. 3.



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POWER DRIVE FOR TYPEWRITERS

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7 Claims. (Cl. 197—14)

The present invention relates to type-writers and more particularly to a device, adapted to be used in connection with machines actuated by keys, by the use of which the key, after having been struck gently by a finger, is, in a well known manner, subjected to a simultaneously released power which causes the complete depression of the key and thereby the printing of the type depressed. To solve the problem stated above, the invention provides a locking bar which is arranged opposite rigid fixing hooks provided at the keys in such manner, that, as soon as a key is depressed, said bar may engage the fixing hook carried by this key. At the same time is released the driving power which shifts the locking bar and therefore the key coupled to this bar also as far as is necessary to cause the printing of the corresponding type. At this moment the driving power is automatically cut out, so that the locking bar and the key also return, under the action of a spring or the like, into the original or exit position.

In the accompanying drawing the invention is shown by way of example. Fig. 1 is a perspective view of a device according to the invention; Fig. 2 shows a perspective view of a modified construction of the new device and Fig. 3 illustrates another modification also in perspective view.

Fixed to each of the key levers 2 is a hook 1 opposite to which a locking bar 3 is arranged in such manner, that the portion 3*a* of this locking bar 3 engages the hook 1 as soon as the key is depressed a few millimeters and thereby depresses the portion 3*b* of the locking bar 3. A spring 4 tends to always hold the locking bar 3 in such position, that the portion 3*a* is out of engagement and the portion 3*b* bears against the lower edge of the type lever. The locking bar 3 is pivoted to a lever 5. Beside the lever 5 is arranged a lever 13 which is connected to an armature 6 of an electromagnet 7. A pin 14 is connected to a projection of the lever 13 in such manner, that, as soon as the lever 13 moves downwardly, this pin actuates one of the lever arms of the locking bar. Fixed to the locking bar 3 is a resilient contact 11 which is arranged opposite a block 9, consisting of insulating material. A conducting lamina 10 is connected to the insulating block 9 in such manner, that it covers the inclined upper surface of the insulating block 9 and also the juxtapositioned vertical surface of same. The insulating block 9 is, with regard to the contact spring 11, arranged in such manner, that it does not touch the lamina 10 whenever none of the keys are depressed and the portion 3*b* of the locking bar 3 therefore occupies its uppermost position. The contact spring 11 on the one hand and the lamina 10 on the other hand are electrically connected to the electromagnet 7 and in this circuit a source of current 8 is provided.

The operation of the new device is as follows:

If a key is gently depressed, the pressure of the key lever against the portion 3*b* of the locking bar 3 causes said locking bar to rock against the action of the spring 4. The portion 3*a* of the locking bar 3 engages the hook 1 of the depressed key. At the same time the spring 11 comes into contact with the contact lamina 10 and closes a circuit through the electro-magnet 7 which attracts its armature 6 and therefore shifts the lever 13. The stop or pin 14 bears against the locking bar 3 and depresses same as well as simultaneously the key so far, that printing or impression of the type occurs. The spring 11 thereby is moved underneath the end of the lamina 10, comes out of engagement with same and opens the circuit of the electro-magnet 7, so that, by the action of the spring 12, the levers 5 and 13 and therefore the locking bar 3 also may return into the exit position. During this return movement the spring 11 slides upon the back of the insulating block 9 and therefore does not close a contact.

In the modified construction of the device shown in Fig. 2, the pressure acting upon the key 15 causes the fixing hook 16 to be shifted into the range of the locking bar 17 and at the same time a roller 20 is, by means of a rod 18 and a lever 19, pressed against a contact spring 21, so that this spring 21 comes into contact with the contact spring 22, whereby a circuit is closed through the electro-magnet 23. The electro-magnet 23 attracts its armature 24 and thereby moves the arm 17*a* of the locking bar 17 in such manner, that the locking bar 17 engages the hook 16 and is, as soon as it meets resistance, moved downwardly as far as allowed by the slot 26 in which the pin 25 slides. The key lever is thereby depressed far enough to cause the printing. Together with the key lever, the bar 18 also is moved downwardly, so that the roller 20 reaches the lower end of the block 27 and releases the contact spring 21. Thereby the circuit of the electro-magnet 23 is opened. Under the action of the spring 28 the locking bar 17 and the key lever are returned into the exit or original position. The roller 20 also returns to its original position thereby passing underneath the spring 29.

It is not absolutely necessary that the circuit through the electro-magnet 7 or 23 be opened at the very moment in which the key lever has reached its lowermost position. The circuit could also be opened earlier or later. In the latter case it would, by correspondingly forming the slot 26 or by arranging a suitable ramp or inclined surface or the like, be possible to mechanically cause the locking bar to release the fixing hook as soon as the key lever occupies its lowermost position. The charging current of a condenser could suitably be used to energize the electro-magnet which, of course, could be replaced by a solenoid or a Johnsen-Rahbek-relay or the like. The power drive could, however, also be effected pneumatically or by electromotive force and so on.

If a very powerful electromagnet is used a very short current impulse is sufficient to start the magnet and to depress the key lever into its lowermost position. The point-like constructed switch may in this case be omitted and instead of this a contact device may be used such as is shown by way of example in Fig. 3. On depression of the key 29 two contact poles 32, 33 come into engagement as soon as the fixing hook 30 occupies a position, opposite the locking bar 31, ready to be coupled. By closing the contact poles 32, 33, the electro-magnet 34 is energized and pulls the locking bar 31 downwardly. The arrangement is such, that the key lever 29 is not at once moved by the locking bar 31 which at first moves with play or makes a small idle movement, whereby the contact is opened as soon as the electro-magnet pulls the locking bar downwardly. The electro-magnet is therefore energized for a very short period of time only but sufficiently long to attract its armature and to move the key lever into the lowermost position.

It will, of course, be understood that the hooks 1, 16 or 30 may be fixed to the key bars in any desired way, and although screws or rivets are shown for securing them, they may also be stamped out integrally with the key bars if desired, without departing from the invention.

What I claim is:

1. In a power drive for type-writers in combination key levers, rigid hooks immovably secured to said key levers and a locking bar common to all said key levers and movably arranged opposite said key levers in such manner, that when a key lever is depressed, the hook of said depressed key lever will lie in a position adjacent the locking bar, and means initially actuated by the bar for causing the said bar to engage said hook and then shift said hook in the working direction of said key lever.

2. In a power drive for type-writers in combination key levers, rigid hooks immovably secured to said key levers, a source of power and a locking bar common to all said key levers and movably arranged opposite said key levers in such manner, that when a key lever is depressed, the hook of said depressed key lever will lie in a position adjacent the locking bar and means causing the said bar to engage said hook and then shift said hook in the working direction of said key lever, said locking bar consisting of an angle lever one arm of which carries a locking projection, whereas the other arm serves as the point of application for the source of power for effecting the movement of the key levers.

3. In a power drive for type-writers in combination key levers, rigid hooks immovably secured to said key levers, a source of power and a locking bar common to all said key levers and movably arranged opposite said key levers in such manner, that when a key lever is depressed, the hook of said depressed key lever will lie in a position adjacent the locking bar and means causing the said bar to engage said hook and then shift said hook in the working direction of said key lever, said locking bar consisting of an angle lever one arm of which carries a locking projection, whereas the other arm serves as the point of application for the source of power for effecting the movement of the key levers and simultaneously serves as a support for the key lever, so that, on the depression of a key lever, the locking projection is, by the resulting rocking movement of the angle lever, caused to engage the fixing hook.

4. In a power drive for type-writers in combination key levers, rigid hooks immovably secured to said key levers and a locking bar common to all said key levers, said locking bar consisting of an angle lever and being pivotally arranged opposite said key levers in such manner as to be movable through a distance corresponding to the path of movement of the said key levers.

5. In a power drive for type-writers in combination key levers, rigid hooks immovably secured to said key levers a source of power and a locking bar common to all said key levers and movably arranged opposite said key levers in such manner, that when a key lever is depressed, the hook of said depressed key lever will lie in a position adjacent the locking bar and means causing the said bar to engage said hook and then shift said hook in the working direction of said key lever, said locking bar consisting of an angle lever one arm of which carries a locking projection, whereas the other arm serves as the point of application for the source of power for effecting the movement of the key levers, a spring, counteracting the source of power for effecting the movement of the said angle lever, and acting upon said last mentioned arm at a point nearer the pivot point of said angle lever than the point of application of the source of power for effecting the movement of said angle lever, so that, as soon as the said power is effective, the said angle lever performs a rotary movement and a movement in the direction of the path of movement of the said key lever and therefore returns into its original position.

6. In a power drive for type-writers in combination key levers, rigid hooks immovably secured to said key levers a source of electricity and a locking bar common to all said key levers and movably arranged opposite said key levers, a switch, said locking bar acting upon said switch, said switch being constructed as a double point device and closing the circuit in one direction of movement of said locking bar only, an electro-magnet, and a circuit including, in series, the electro-magnet, the switch, and the source of electricity, said electro-magnet having an armature connected to the locking bar, whereby said bar is actuated when the circuit is closed.

7. In a power drive for type-writers in combination key levers, rigid hooks immovably secured to said key levers, a source of power and a locking bar common to all said key levers and movably arranged opposite said key levers in such manner, that when a key lever is depressed, the hook of said depressed key lever will lie in a position adjacent the locking bar, and means causing the said bar to engage said hook and then shift said hook in the working direction of said key lever, said locking bar consisting of an angle lever, one arm of which carries a locking projection.

GUSTAV TAUSCHEK.