

Nov. 5, 1929.

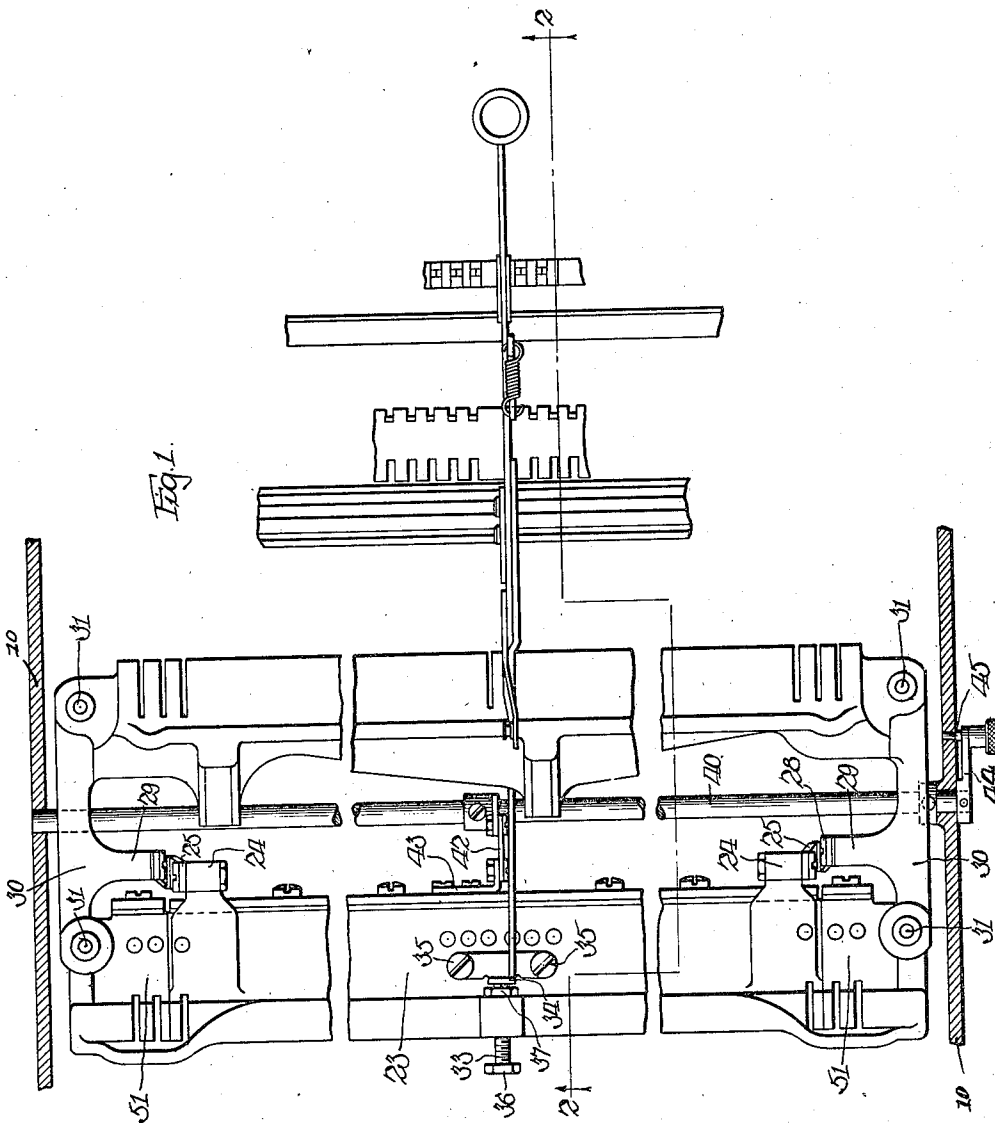
O. A. HOKANSON

1,734,728

MANUAL AND POWER OPERATED TYPEWRITER

Filed Feb. 5, 1926

2 Sheets-Sheet 1



Inventor:
Otto A. Hokanson
By Nissen & Crane Attys.

Nov. 5, 1929.

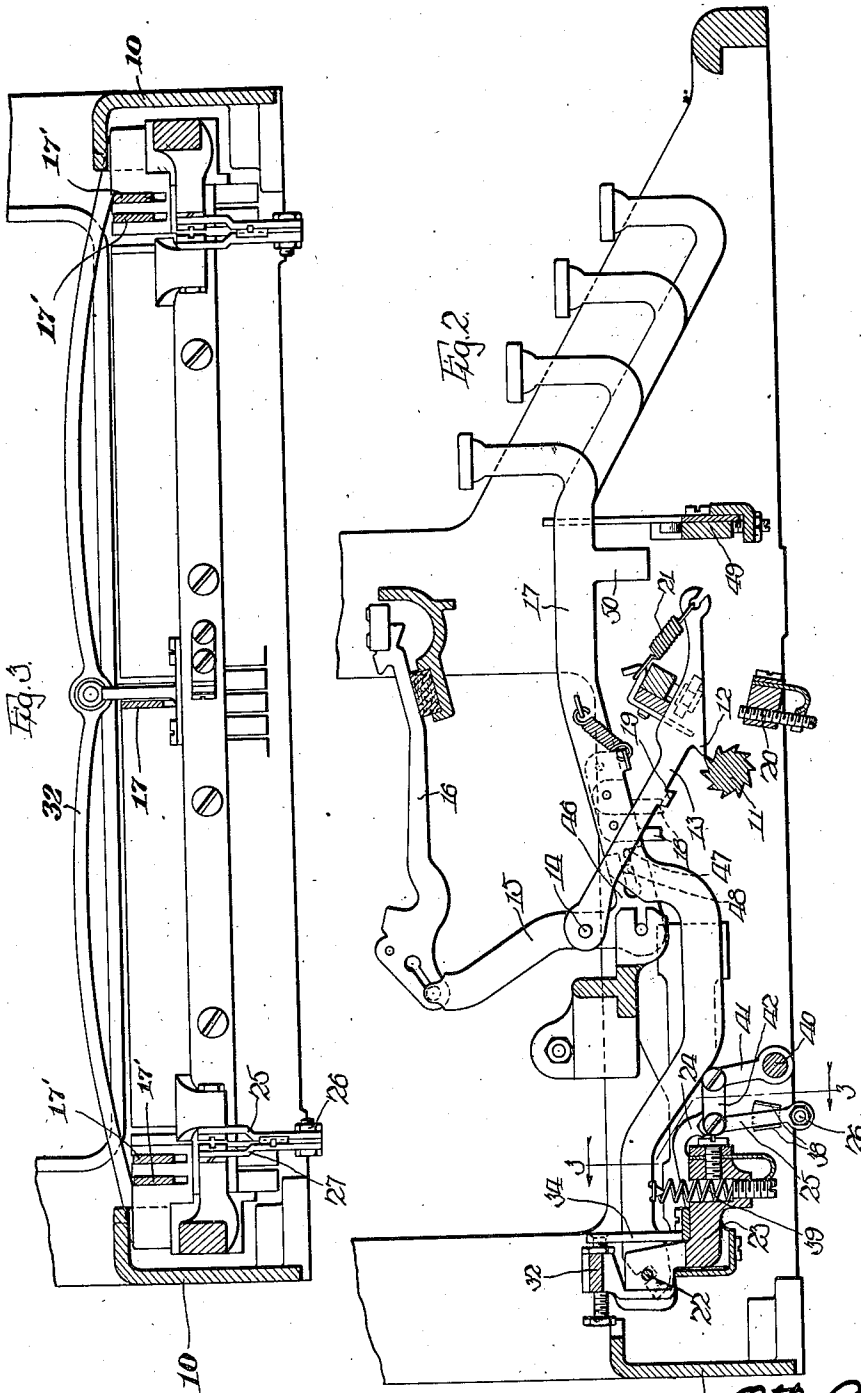
O. A. HOKANSON

1,734,728

MANUAL AND POWER OPERATED TYPEWRITER

Filed Feb. 5, 1926

2 Sheets-Sheet 2



Inventor:
O. A. Hokanson
By *Nissen & Crane* Attys

UNITED STATES PATENT OFFICE

OTTO A. HOKANSON, OF WOODSTOCK, ILLINOIS, ASSIGNOR TO WOODSTOCK TYPEWRITER COMPANY, OF WOODSTOCK, ILLINOIS, A CORPORATION OF ILLINOIS

MANUAL AND POWER-OPERATED TYPEWRITER

Application filed February 5, 1926. Serial No. 86,118.

This invention relates to typewriting mechanism having power driving means, the mechanism being adjustable to permit hand operation.

The object of the invention is to provide a power driven typewriter which shall be efficient in operation and which may be readily adjusted for operation by hand.

The invention is exemplified in the combination and arrangement of parts shown in the accompanying drawings and described in the following specification, and it is more particularly pointed out in the appended claims.

In the drawings—

Fig. 1 is a top plan view of typewriter mechanism showing one embodiment of the present invention;

Fig. 2 is a section substantially on line 2—2 of Fig. 1; and

Fig. 3 is a section substantially on line 3—3 of Fig. 2.

The invention is shown as applied to the Woodstock "Electrite" typewriting machine, but it will be understood that the principles of the invention may be applied to other forms of typewriters.

The numeral 10 designates the frame of a typewriting machine having a power drive comprising a rotary drum 11 journaled therein and provided with ratchet teeth for engaging teeth 12 of actuators 13. The actuators 13 are pivotally connected at 14 to sublevers 15 which are in turn connected with type bars 16. Key levers 17 are provided with contact fingers 18 arranged to engage laterally projecting lugs 19 on the actuators 13 to move the actuators into operative relation with the driving cylinder 11. This will cause the actuator corresponding to a particular key lever depressed to be drawn forwardly until the front face of the teeth 12 engages an adjustable stop 20 by means of which the actuator is disengaged from the power drive. Springs 21 are connected with the actuators 13 to return them to normal position after each operation. The construction thus far described is similar to that of my prior application, Serial No. 732,615, filed August 18, 1924, Patent No. 1,614,475,

granted January 18, 1927, for an improvement in power actuated typewriters.

The key levers 17 for operating the type bars are pivotally mounted at 22 on a slotted bar 23. The bar 23 is provided with forwardly projecting lugs 24 having depending links 25 pivoted thereto. The lower ends of the links 25 are pivoted at 26 to co-operating links 27 which are pivotally supported at 28 on lugs 29 which extend inwardly from inner frame members 30. The frame members 30 are provided with threaded openings 31 by which they are secured to the outer frame member 10. The frame members 30 at opposite sides of the typewriter are connected by a transverse bridge member 32 having a horizontal opening therethrough at the center of the typewriter through which a pin 33 extends. The pin 33 at its forward end is fixed to a bracket 34 projecting upwardly from the slotted bar 23 and secured thereto by screws 35. The pin 33 slides freely in the opening through the bridge 32 and is provided with a head 36 for limiting the forward movement and an adjustable stop nut 37 for limiting the rearward movement of the bar 23. It will be seen that the slotted bar 23 is thus suspended in a manner to permit limited front and rear movement thereof. The suspending links 25 and 27 may be provided with stops 38 for limiting the relative movement of these links. Adjustable compression springs 39 are provided in a well-known manner for supporting the key levers in their upper upright position. In this way the key levers are all suspended on the cross-bar 23 and are free to move fore and aft of the typewriter frame in unison with the cross-bar 23. A shaft 40 is journaled in the frame 10 and is connected by a crank arm 41, a link 42, and a bracket 43 to the slotted bar 23. A hand crank 44 is connected to the end of the shaft 40 by means of which the shaft may be oscillated to shift the bar 23 fore and aft. A spring pin 45 is provided for holding the bar 23 in its positions of adjustment at the front and rear extremities of its movement.

The sublevers 15 are all provided with forwardly projecting arms 46 provided with slots 47 for receiving pins 48 on the corre-

sponding key levers 17. When the bar 23 and the key levers attached thereto are in their forward position the pins 48 will be in front of the forward ends of the slots 47 so that depression of the key levers will not operate the forwardly projecting arms 46 of the sub-levers. When the key levers are in their rear position, however, depression of a key lever will operate the sublevers and the type bars 16 by means of the pins 48 and slots 47 in the manner of manually operated typewriting machines. When the key levers are in their forward position the contact fingers 18 will be in registration with the lugs 19 so that operation of the key levers will move the actuators 13 into contact with the drive roller 11, thus effecting power operation of the type bars. When the key levers are shifted rearwardly, however, the contact fingers will be moved out of registration with the lugs 19 so that the typewriter may be operated manually without affecting the power mechanism. When the power operating mechanism is utilized the keys are not depressed to so great an extent as they are for manual operation and a combined stop and interlocking bar 49 is provided for limiting the downward movement of the keys. The keys are provided with projections 50 for co-operating with the bar 49. These projections 50 are moved out of registration with the bar 49 when the keys are shifted rearwardly for manual operation, thus permitting sufficient movement of the keys to directly operate the type bars.

In most instances it is desirable to have certain keys arranged for manual operation at all times. For instance, it may be desirable to provide manually operated back spacing mechanism or manually operated case shift mechanism. Such keys may be pivoted on slotted sections 51 of Fig. 1 mounted directly on the inner frame members 30 and not connected with the movable cross-bar 23. Such keys mounted on the slotted sections 51 independent of the support 23 are illustrated in cross-section at 17', 17' in Fig. 3 near the rear side ends of the frame 10, Fig. 3 being a section taken on the line 3—3 of Fig. 2 looking in the direction of the arrows.

I claim:—

1. A typewriter comprising power operated mechanism for actuating a movable part of said typewriter, and a key lever for causing said mechanism to actuate said part, said key lever being adjustable into a position for operating said movable part independent of said power operated mechanism.

2. A typewriter having power actuated operating mechanism and manually actuated operating mechanism, and a key lever adjustably movable for selective co-operative relation with said power actuated mechanism and said manually actuated mechanism.

3. A typewriter comprising a key lever, separate devices including a power operated

device arranged to be operated by said key lever, and means for adjusting said key lever selectively into co-operative relation with said devices, said key lever being out of co-operative relation with either of said devices when in co-operative relation with the other.

4. A typewriter comprising a key lever, a support for said key lever, means for adjusting said support and said key lever in the direction of the length of said key lever, connections for operating the typewriter manually when the key lever is in one position, and power-actuated mechanism for operating the typewriter when the key lever is in another position.

5. A typewriter comprising a key lever, a support for said key lever, a type bar, connections between said key lever and said type bar for operating the latter manually, power-operated mechanism connected to said type bar for operating the latter automatically on depression of said key lever, and means for shifting said support to adjust said key lever and its connections to said type bar for operating the latter manually when the key lever is in one position and to shift said support to another position to effect the connection of said key lever to said power-operated mechanism when said key lever is depressed.

6. A typewriter comprising an operative part, a key lever having separable engagement with said operative part, and a power drive for said operative part, said key lever being movable out of operative engagement with said operative part and into operative relation with said power drive.

7. A typewriter comprising a sublever, a key lever having separable engagement with said sublever, an actuator connected with said sublever, a power drive for operating said actuator, said key lever being movable out of operative relation with said sublever and into operative relation with said actuator.

8. A typewriter comprising a type bar, a key lever for operating said type bar, a power actuator for operating said type bar, means on said key lever for controlling said actuator, and means for shifting said key lever selectively into operative relation with said type bar and actuator.

9. A typewriter comprising a type bar, a sublever for operating said type bar, a key lever having separable engagement with said sublever, an actuator connected with said sublever, a power drive for said actuator, means on said key lever for moving said actuator into operative relation with said power drive, and means for shifting said key lever longitudinally thereof to two positions of adjustment, said key lever being operatively related to said sublever in one of said positions and operatively related with said actuator in the other of said positions.

10. A typewriter having power-actuated operating mechanism and manually actuated

operating mechanism, a plurality of key levers, a support for said key levers, and means for shifting said support to move said key levers in the direction of the length thereof into two different operative positions one for said power-actuated operating mechanism and the other for said manually actuated operating mechanism.

11. In a typewriter, a plurality of key levers, type bars, a power actuating mechanism for said type bars, and means for shifting said key levers in the direction of the length thereof, said key levers having actuating connection with said type bars in one position thereof and having operative relation with said power actuating mechanism for controlling said power actuating mechanism when in their other position of adjustment.

12. In a typewriter, a plurality of key levers, a shiftable support for a portion of said key levers, said portion of said key levers being movable with said adjustable support into different operative relations, and a fixed support for other of said key levers.

13. In a typewriter, a plurality of key levers, a bar on which said key levers are pivotally mounted, means for shifting said bar in the direction of the length of said key levers for moving the key levers thereon into different operative relations, a fixed support, and a key lever pivoted in said fixed support.

14. In a typewriter, a plurality of key levers, a transverse bar on which said key levers are pivotally mounted, springs carried by said bar for supporting said key levers in raised position, means for guiding said bar for movement in the direction of the length of said key levers, and means for limiting the movement of said bar.

15. In a typewriter, a plurality of key levers, a transverse bar on which said key levers are pivotally mounted, means for guiding said bar for movement in the direction of the length of said key levers, type carriers, means for establishing driving relation between said key levers and type carriers when said bar is in one position, a power drive for said type carriers, and means operable by said key levers when said bar is in another position for establishing driving relation between said power drive and type carriers.

16. In a typewriter, a plurality of key levers, and an interlocking device for preventing operation of more than one of said key levers at a time, said key levers being movable out of operative relation with said interlocking device.

17. In a typewriter, a plurality of key levers, power actuating mechanism for said typewriters, means actuated by said key levers for controlling said power actuating mechanism, and an interlocking device for preventing operation of more than one of said key

levers at a time, said key levers being movable out of operative relation with said power actuating mechanism and interlocking device.

18. In a typewriter, a plurality of key levers, type bars, a power drive, actuators for connecting said type bars with said power drive, means controlled by said key levers for moving said actuators into operative relation with said power drive, and means for manually operating said type bars by said key levers, said key levers being shiftable into one position for operating said type bars manually and into another position for controlling said actuators, said key levers being out of operative relation with said actuators when in position to operate said type bars manually.

19. In a typewriter, a type carrier, a key lever, means for connecting said type carrier with said key lever to transmit movement from said key lever to said type carrier, a power drive, and an actuator movable into and out of engagement with said power drive to effect driving connection between said drive and said type carrier, said key lever being shiftable into one position for engaging said connecting means so that movement of said key lever will operate said type carrier manually and into another position for co-operating with said actuator in which position movement of said key lever will effect connection between said actuator and power drive to operate said type carrier from said power drive.

20. A typewriter comprising a key lever, a support for said key lever, means for shifting said support and key lever in the direction of the length of said key lever, a type carrier, means engaged by said key lever when said key lever is in one position for transmitting movement from said key lever to said type carrier, a power drive, and an actuator for effecting connection between said type carrier and power drive to operate said type carrier from said power drive, said key lever being arranged when depressed to move said actuator into engagement with said power drive when said key lever is in another position.

21. In a typewriter, a type carrier, a sub-lever for operating said type carrier, a key lever arranged to engage said sub-lever to operate said type carrier when said key lever is in one position, a power drive, an actuator connected with said sub-lever and movable into and out of engagement with said power drive, and means for moving said key lever out of engagement with said sub-lever and into position to effect connection between said actuator and power drive when said key lever is depressed.

22. A typewriter comprising a plurality of type bars, a plurality of key levers, power-actuated mechanism for operating the type bars under the control of said key levers, con-

nections for permitting said key levers to operate said type bars manually, an additional type bar, an additional key lever therefor, and means for mounting said additional type bar and said additional key lever independently of the power-actuated operating mechanism so as to be permanently embodied in the typewriter for manual operation at all times.

23. In a typewriter, the combination with
10 a plurality of key levers, of a plurality of type bars, power-actuated mechanism for operating said type bar under the control of said key levers, means for shifting the key levers into position for manual operation of
15 said type bars, connections for effecting manual operation of said type bars when said key levers are thus shifted, a plurality of additional type bars, a plurality of additional key levers corresponding thereto, and means for
20 mounting said additional type bars and additional key levers for permanent manual operation independently of said power-actuated mechanism.

In testimony whereof I have signed my
25 name to this specification on this 29th day of January, A. D. 1926.

OTTO A. HOKANSON.

30

35

40

45

50

55

60

65