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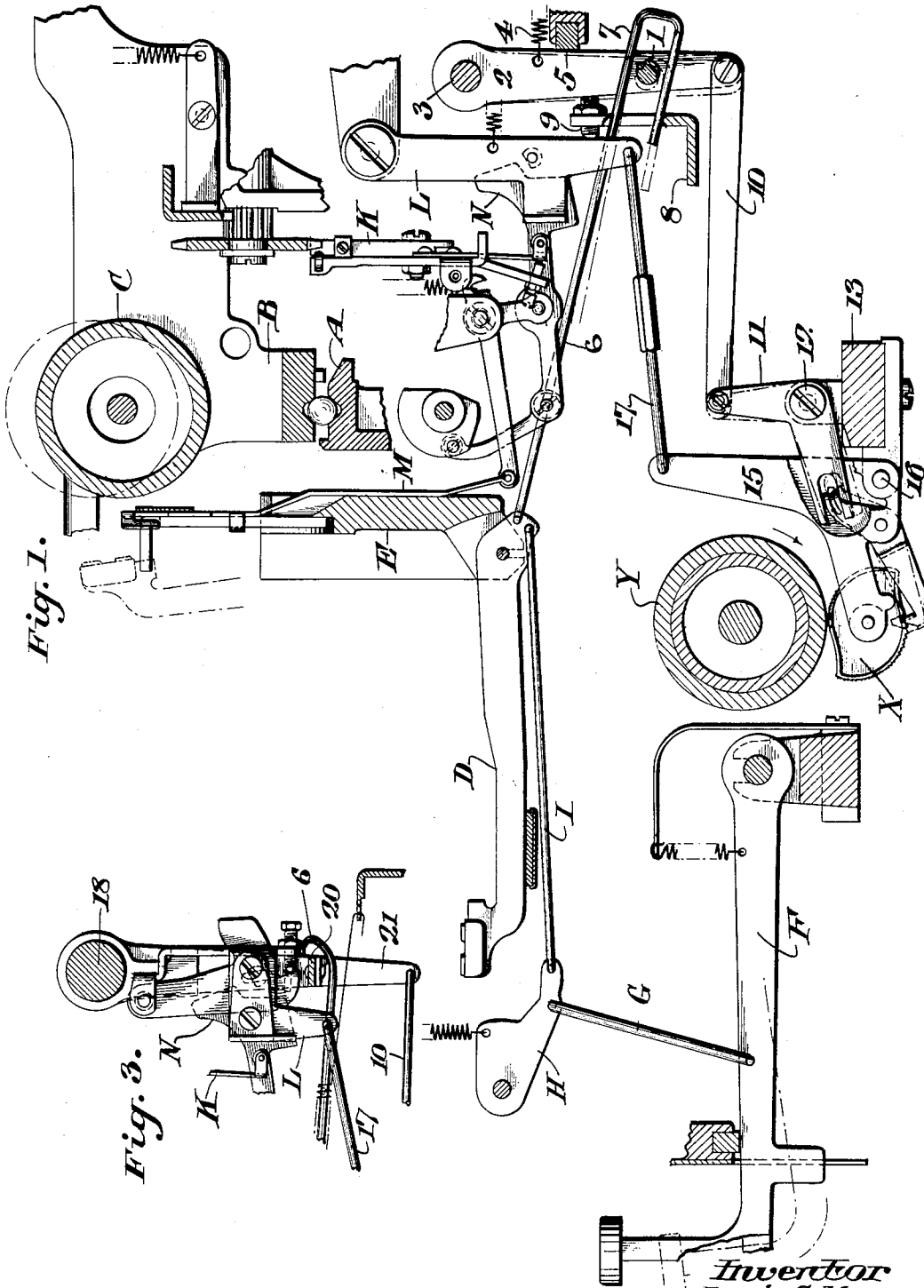
L. C. MYERS

1,722,937

TYPEWRITING MACHINE

Filed Dec. 23, 1927

2 Sheets-Sheet 1



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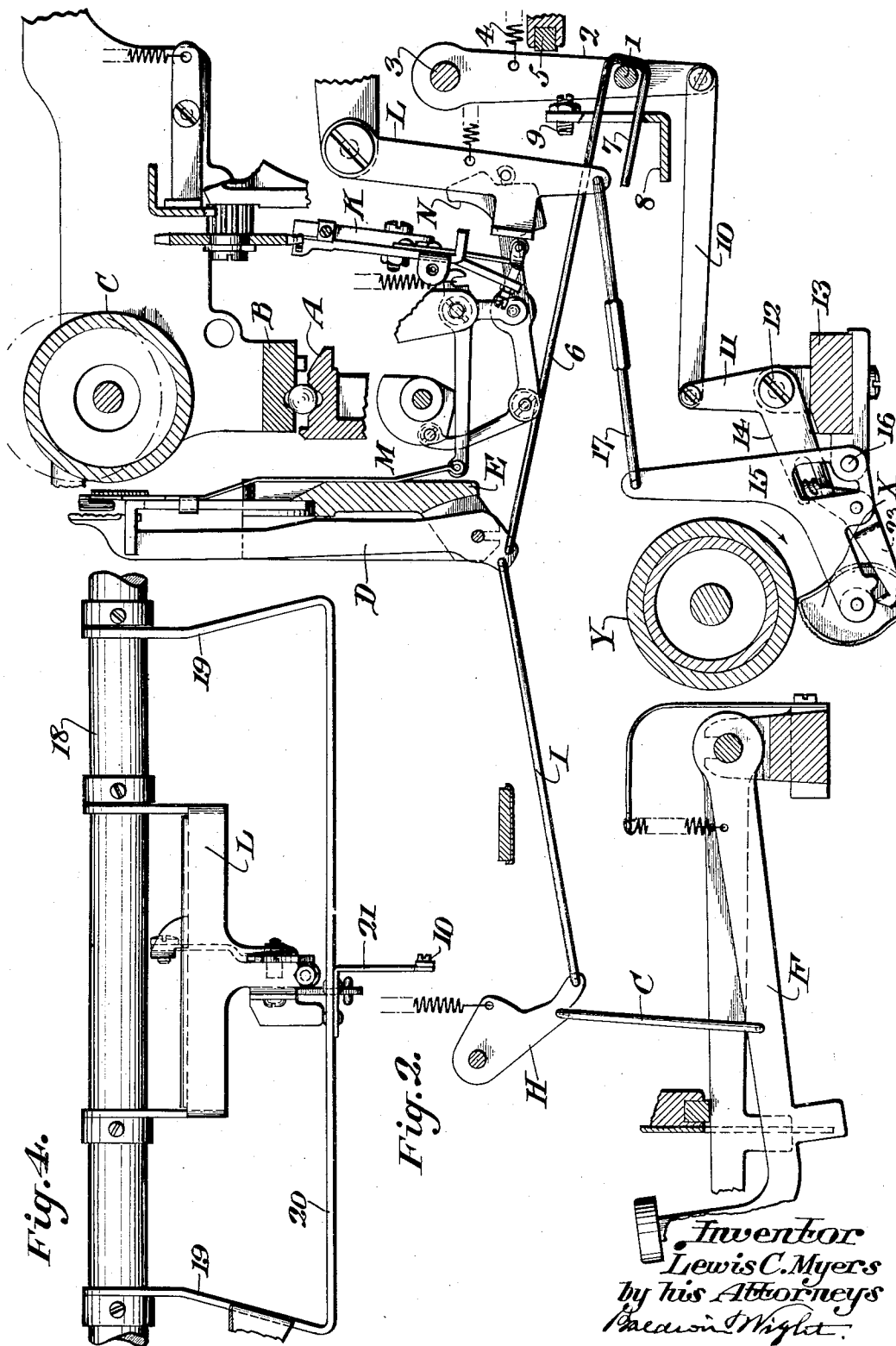
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2 Sheets-Sheet 2



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Patented July 30, 1929.

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UNITED STATES PATENT OFFICE.

LEWIS C. MYERS, OF FREEPORT, NEW YORK, ASSIGNOR TO ROYAL TYPEWRITER COMPANY, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

TYPEWRITING MACHINE.

Application filed December 23, 1927. Serial No. 242,165.

In power driven typewriting machines it is old and common to have all of the instrumentalities of the machine, such as the type action, escapement mechanism, and ribbon mechanism, operated by power, and to have the operation of the power controlled by a slight depression of the key lever. In other words, a very slight depression of the key lever constitutes the whole of the work that is performed by the operator, the remainder of the work being performed by the power mechanism.

In certain type actions, particularly that embodied in the standard Royal machine, the amount of work involved in actuating the type action is very slight, and the greatest resistance to the depression of the key levers is that resultant upon the work necessary to operate the escapement and ribbon mechanisms.

The present invention relates to a construction in which the type action is operated from the type key levers in the usual manner, while the escapement mechanism and ribbon mechanism are operated by power. The usual actuator which operates these mechanisms in the Royal machine is or may be employed, but this actuator is not operated from any point in the type action, as has previously been the case. A universal bar is employed which is operatively connected to the type bars so that it will be brought into operation during the latter part of the movement of the type bar to printing position. The movement of this universal bar brings into operation a power actuated lever which is connected to the actuator, which, as above stated, operates the ribbon mechanism and escapement mechanism in the usual manner.

Further details of the invention will be apparent from the following description and appended claims.

In the drawings, Figure 1 is a fore and aft vertical section with parts in side elevation through a typewriting machine embodying the present invention. Figure 2 is a similar view showing the parts in operative position.

Figure 3 is a side elevation of a portion of the mechanism showing a modification.

Figure 4 is a rear view of the modification shown in Figure 3.

From a broad point of view, the invention may be embodied in typewriting machines

of widely differing character, but for the purpose of illustration it has been shown embodied in a standard Royal typewriter wherein it is of particular value. The drawings disclose a portion of a shift frame A upon which travels a carriage B provided with the usual platen C, against the front of which strike type bars D, which are pivoted in the usual segment E. Key levers F are connected by links G to front links H, which in turn are connected by links I to the type bars D. The usual escapement mechanism K is employed, and the usual ribbon vibrator M with its actuator N. An actuator L is positioned to operate the escapement and ribbon vibrator in the usual manner.

A universal bar 1 is carried by arms 2 supported by a rock shaft 3, and the universal frame thus formed is normally urged in one direction by a spring 4 which is attached to one of the arms 2 and to the frame of the machine. The movement of this frame under the influence of the spring is limited by a resilient strip 5. Links 6 are connected at one end to the type bars D and are provided at the other end with an open bend 7 which is hooked around the bar 1 and normally at a distance therefrom, as shown in Figure 1. These links are guided in a slotted plate 8 carried by the frame of the machine, which plate is provided with an adjustable screw stop for limiting the return movement of the actuator L under influence of its usual spring.

Connected to the universal frame is one end of a link 10, the other end of which is connected to one arm 11 of a bell crank lever fulcrumed at 12 on a transverse bar 13 carried by the frame of the machine. The other arm 14 of this bell crank lever is connected to operate a stop lever 23 which controls a cam X and permits the same to come into operative engagement with a rotary actuating element such as a constantly rotating shaft having a roller Y fixed thereon. This mechanism is substantially the same as that shown in patent to Dorsey 1,628,037, of May 10, 1927, and needs no further detailed description herein. It may be noted that the stop lever 23 is substantially or exactly the same member as that designated by the same reference numeral in the patent just cited. This power mechanism has been selected for illustration, although it is obvious that some

other form of power mechanism might be employed instead.

The cam X is journaled on a normally inactive operating bell crank lever 15 which is pivoted at 16 in the frame member 13 and connected by an adjustable link 17 to the actuator L.

It is obvious from a comparison of Figures 1 and 2 that the type bar D will be moved to substantially the dotted line position of Figure 1 before the hooked end 7 of the link 6 comes into engagement with the universal bar 1. The subsequent movement of this universal bar from the full to the dotted line position of Figure 1 will throw the power mechanism into operation and produce a quick movement of the actuator L, which will operate the escapement and ribbon mechanism. Upon further depression of the key F, the link 7 will swing the universal bar 1 forwardly, and this bar through the medium of the link 10 will rock the bell crank lever 11, 14 and thereby release the stop lever 23 from its locking engagement with the cam X. The cam X, through its frictional contact with the power operated and constantly rotating roller Y, will be rotated and thereby swing the operating or bell crank lever 15. The bell crank lever 15 will then swing the actuator L forwardly to effect an operation of the ribbon mechanism and an operation of the escapement mechanism in sequence. The operation of the parts is so timed that the ribbon will be first thrown into proper position, and the escapement operated immediately thereafter. Since the power mechanism is disconnected from the actuator L immediately, regardless of whether the key lever F is released or not, and since the type bar D will return to the dotted line position of Figure 1, whether the key lever F is released or not, it is obvious that the escapement and ribbon mechanisms are permitted to return to normal position very quickly and independently of the speed with which the key lever is permitted to return to normal position.

In the form shown in Figures 1 and 2, the actuator L and frame 1 are pivoted on different axes. The modification shown in Figures 3 and 4 discloses a form which is somewhat more compact, since the actuator and the universal bar are supported from a single shaft and turn about the same axis. The same reference numerals have been applied to this modification, where they are applicable.

In this form a rock shaft 18 supports the arms of the actuator L and also arms 19, which are connected to or integral with a universal bar 20 which corresponds to the universal bar 1 of the first form. Fast to the bar 20 is a downwardly projecting arm 21 to which is connected a link 10. It is obvious that the actuator and the universal

bar may turn with its supporting arms about the shaft 18 independently of the other. It is also apparent that this construction is somewhat more compact and simple than the form illustrated in Figures 1 and 2, although the operation and fundamental principle are the same.

The present invention enables the power mechanism to be installed much more simply than in the usual machine, wherein a separate power unit is necessary for each type key. A machine equipped with the present invention needs only a single unit for the whole key board, a power unit for the back space mechanism, one for the carriage return, and another for the platen shift. All operations which really call for the exertion of power on the part of the operator are thus performed mechanically, and the type action alone is moved by the manual operation of the key levers.

Although in the modification shown in the drawings the link 6 is connected to the heel of the type bar, it is obvious that it may be connected to the link I or other point of the type action since it is only necessary that it be operated directly from such type action. It may be further noted that although the present construction employs an actuator L which is normally present in the standard Royal machine, nevertheless the particular form of this element can be modified since it is only necessary that its actuation shall operate the escapement and ribbon mechanism at the proper time and in the proper sequence. The term actuator in the claims should, therefore, be understood when referring to the member L as covering any equivalent member which is operated from the source of power but controlled by the actuation of any of the type keys.

It is apparent that various modifications in the precise form and arrangement of the parts may be made without in any way departing from the spirit of the invention. The drawings are therefore to be considered merely as illustrative, and the invention is to be regarded as limited only by the scope of the appended claims.

I claim as my invention:

1. In a typewriting machine embodying a type action, an actuator and escapement mechanism and ribbon mechanism operated thereby; the combination of key levers for operating said type action, a universal bar, a link connected to the type action and having lost motion connection with the universal bar, power operated devices rendered effective by the movement of the universal bar, and connections from said power operated devices to the actuator.

2. In a typewriting machine embodying a type action including a pivoted type bar, an actuator, and ribbon mechanism and escapement mechanism operated in sequence

thereby, the combination of key levers for operating the type action, a universal bar, a link connected to the type bar and having lost motion connection with the universal bar, power operated devices rendered effective by the movement of the universal bar, and connections from said power operated devices to the actuator.

3. In a typewriting machine embodying a type action, an actuator and escapement mechanism and ribbon mechanism operated thereby, the combination of key levers for operating said type action, a universal bar controlled by the operation of the type action, power operated devices including a rotary actuating element and a normally inactive lever adapted to be operated thereby, means operated upon movement of the universal bar to move said lever into active relation with said rotary actuating element, and connections between said lever and the actuator.

4. In a typewriting machine embodying a type action, an actuator and escapement mechanism and ribbon mechanism operated thereby, the combination of key levers for operating said type action, a universal bar controlled by the operation of the type action, power operated devices including a rotary shaft, a normally inactive cam adapted to be rotated by said shaft, and means for locking said cam against rotation, means operated by the universal bar for releasing said locking means, and means operated by said cam for moving said actuator.

5. In a typewriting machine embodying a type action, an actuator and escapement mechanism and ribbon mechanism operated thereby, the combination of key levers for operating said type action, a universal bar controlled by the operation of the type action, power operated devices including a rotary shaft, a roller fixed thereon, an operating lever, a cam journaled on said operating lever and engageable with said roller, and a stop lever normally engageable with said cam for retaining the same against movement, connections between the stop lever and the universal bar for releasing the former from the cam upon movement of the latter, and connections between said operating lever and said actuator.

6. In a typewriting machine embodying a type action, an actuator and escapement mechanism and ribbon mechanism operated thereby, the combination of key levers for operating said type action, a universal bar, a link connected to the type action and having lost motion connection with the universal bar, power operated devices including a rotary actuating element and a normally inactive lever adapted to be operated thereby, means operated upon movement of the universal bar to move said lever into active relation with said rotary actuating element, and connections between said lever and the actuator.

In testimony whereof, I have hereunto subscribed my name.

LEWIS C. MYERS.