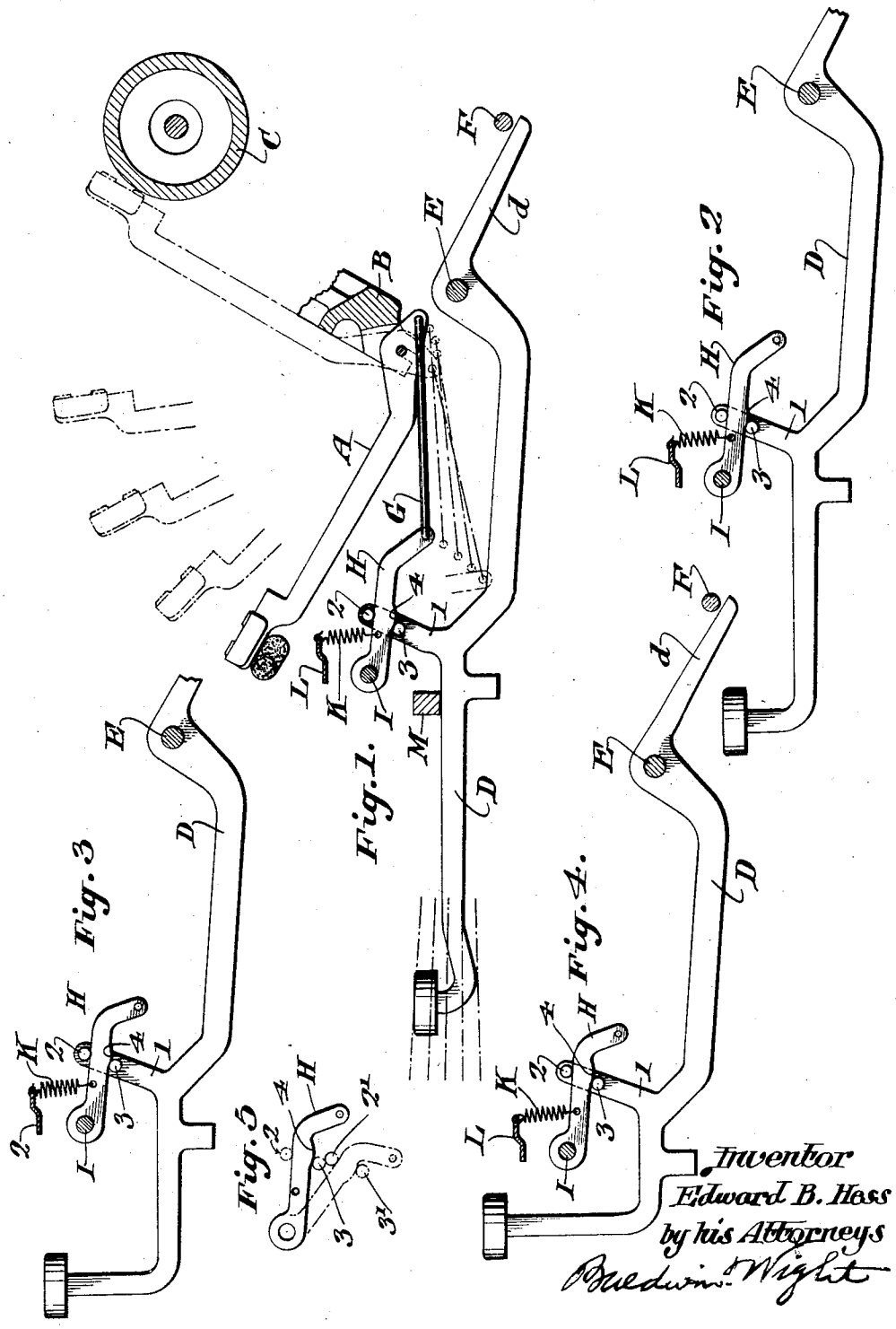
June 5, 1928. 1,672,062

E. B. HESS

TYPEWRITING MACHINE

Filed Jan. 25, 1927 2 Sheets-Sheet 1



June 5, 1928. 1,672,062

E. B. HESS

TYPEWRITING MACHINE

Filed Jan. 25, 1927 2 Sheets-Sheet 2

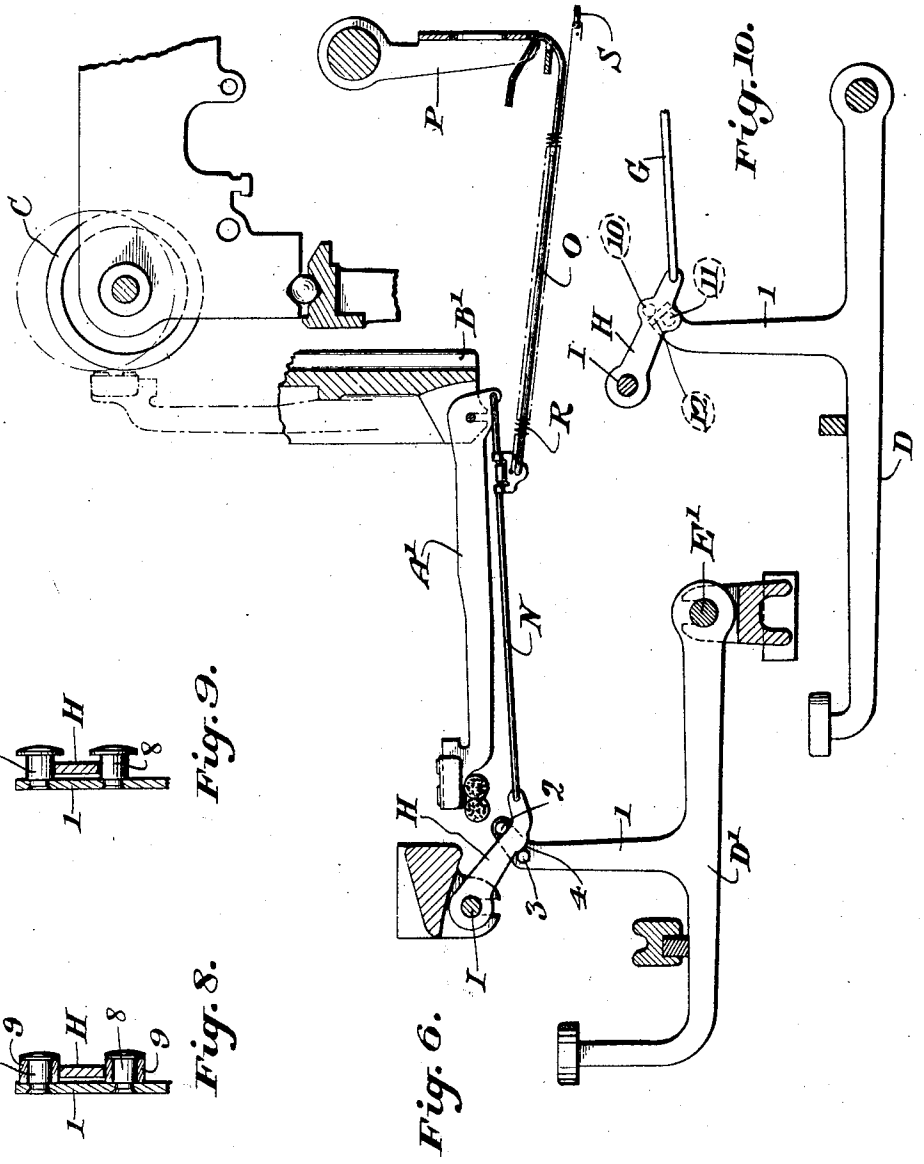



Fig. 6.




Fig. 9.




Fig. 8.

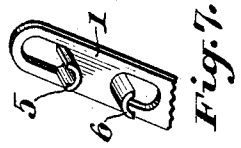



Fig. 7.

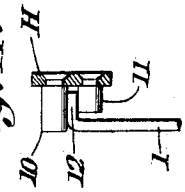



Fig. 11.

Fig. 10.

Inventor
Edward B. Hess
by his Attorneys
Baldwin & Wright

Patented June 5, 1928. 1,672,062

# UNITED STATES PATENT OFFICE.

EDWARD B. HESS, OF ORLANDO, FLORIDA, ASSIGNOR TO ROYAL TYPEWRITER COMPANY, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

## TYPEWRITING MACHINE.

Application filed January 25, 1927. Serial No. 163,384.

This invention relates to an improved type action in many respects similar to that previously employed in the Royal typewriter. Such type actions include a key lever, a type bar and connections between the key lever and type bar which comprise a front link and intermediate connections between the front link and type bar. This invention relates particularly to the operative connection between a key lever and the front link.

In the drawings:

Figure 1 is a view of a single type action with parts in section showing the lowest bank of keys.

Figure 2 is a similar view showing a part of the type action as applied to the next highest bank.

Figure 3 is a view similar to Figure 2 but showing the next to the top bank.

Figure 4 is a similar view showing the top bank.

Figure 5 is a detailed view showing the relation between the front link and parts of the connection to the key lever in normal and actuated position.

Figure 6 is a view similar to Figure 1 showing the invention embodied in a somewhat different form of type action.

Figure 7 is a perspective on an enlarged scale showing a modified form of connection.

Figures 8 and 9 are sectional views with parts in elevation showing further modifications.

Figure 10 is a side elevation and Figure 11 a cross section of a modification.

In the form of the invention shown in Figures 1 to 5 the type action comprises a type bar A pivoted in a type segment B and adapted to strike against the front side of a platen C. A key lever D is pivoted on a rod E and has a rearward and downward extension *d* adapted to actuate a universal bar F. A front link H is pivoted at its front end on a pivot rod I and is extended rearwardly and downwardly and connected by a link G to the heel of the type bar A. A returning spring K is connected at one end to the front link H and at its other end to an anchorage L. The key levers in their return movement may be limited by a stop M.

The parts thus far described are common to the form of type action embodied in the Royal portable machine. The particular feature of the present invention relates to the operative connection between the key lever D and the front link H.

The key lever D has an upward extension 1 which is inclined slightly toward the rear. This is provided with two pins 2 and 3, the first of which overlies the front link H and the second of which underlies the same link. These pins are normally in contact with the upper and lower edges of the front link H. In order that the lower pin may remain in contact with the link during the actuation of the key and the consequent relative sliding movement between the front link and the pins 2 and 3 the lower edge of the front link H has a curved or cam portion 4.

By reference to Figure 5 which shows in full lines the front link in its normal position and in dotted lines the operative position at the end of the depression of the key lever, it will be noted that the upper pin 2 has moved to the position 2′ while the lower pin 3 has moved to the position 3′. There is accordingly a sliding relative movement between the front link H and the pins 2 and 3 and the curved or cam portion 4 is so designed that the lower pin 3 remains in contact therewith at all times.

It may be noted that the front link H and key lever D will move together at all times no matter whether the front link is being depressed or is returning to its normal position. Instead of the returning spring K illustrated in this form, it is possible to attach any desired form of returning spring directly to the key lever. It is also to be noted that because of the angular relation of a line drawn through the pins 2 and 3 with the longitudinal axis of the front link the upward movement of the key lever will be stopped when the parts reach a certain definite position and the returning stop M may be omitted if desired.

Figure 6 discloses the application of the invention to a slightly different form of type action in which the type bars A′ are pivoted in a segment B′ and connected by links N to a front link H pivoted on a rod I and substantially the same as the front link shown in the first form except that it has an upward extension at its extreme end instead of a downward extension. The key levers D′ are pivoted on a fulcrum rod E′ and are connected operatively to the link H exactly as in the first form by an upward projection

1 provided with pins 2 and 3 engaging the upper and lower edges of the link H respectively. The link H is in this case also provided with a rounded portion 4. It has been found desirable to provide this rounded portion, particularly in the first modification shown, in order that the pin 3 may contact with the link H constantly and prevent any movement of the type bar to the printing point without an accompanying depression of the key lever far enough to actuate the universal bar. In the present form each link N is connected by a link O to a universal frame P and a returning spring R is coiled about the link O and has one end attached to a fixed portion S.

In the modification shown in Figure 7, instead of providing the upward extension 1 of each key lever with pins, portions 5 and 6 are struck out of the metal of the extension 1 and rounded so that they engage the upper and lower edges of the link H exactly as do the pins 2 and 3.

In the form shown in Figure 8, pins 7 and 8 are each provided with antifriction rolls 9 which engage the upper and lower edges of the link and facilitate relative movement between the parts.

In the form shown in Figure 9, pins 7 and 8 are employed but are positioned to engage directly with the edges of the front link H. In both Figures 8 and 9 the pins are provided with heads as illustrated.

In the form shown in Figures 10 and 11, the front link H is provided with two projecting pins 10 and 11 which engage on opposite sides of the bent end 12 of the upward extension 1 from the key lever. This bent over end or ear is placed at a proper angle so that it will engage the pins during the pivotal movement of the front link brought about by depression of the key lever. The general action is the same as that of the other modification.

It will be obvious that the invention provides a very simple and efficient means for operatively connecting the key levers to the front links in the general type of type action illustrated.

It is obvious that the present invention maintains all of the advantages of the previous forms of sliding connection between the type bar and the front link and has other advantages which such other forms lack. Because of the constant engagement of the pins 2 and 3 with the front link H it is possible to place the returning spring for the type action in any desired position as found advisable in different machines. It is obvious that minor variations may be made in the precise embodiment of the invention and that the invention may be applied to widely different forms of type actions in which it is desirable to have a sliding connection between the key lever and some intermediate element of the action. The invention therefore is to be regarded as limited only by the scope of the appended claims.

I claim as my invention:

1. In a type action including a key lever, front link, type bar, and connections between the front link and type bar; means for operatively connecting the key lever and the front link which comprises an extension of the key lever and projections from such extension which have a constant engagement with the upper and lower edges of the front link.

2. In a type action including a key lever, front link, type bar, and connections between the front link and type bar; means for operatively connecting the key lever and the front link which comprises an inclined extension of the key lever and projections from such extension which have a constant sliding engagement with the upper and lower edges of the front link.

3. In a type action including a key lever, front link, type bar, and connections between the front link and type bar; means for operatively connecting the key lever and the front link which comprises an extension of the key lever and projections from such extension which have a constant engagement with the upper and lower edges of the front link; and a single spring for returning the entire action to normal position.

4. In a type action including a key lever, front link, type bar, and connections between the front link and type bar; means for operatively connecting the key lever and the front link which comprises an inclined extension of the key lever and projections from such extension which have a constant sliding engagement with the upper and lower edges of the front link; and a single spring for returning the entire action to normal position.

5. In a type action including a key lever, front link, type bar, and connections between the front link and type bar; means for operatively connecting the key lever and the front link which comprises an extension from the key lever inclined upwardly and rearwardly and projections from such extension arranged in a line at an angle to the vertical and having a constant sliding engagement with the upper and lower edges of the front link.

6. In a type action including a key lever, a substantially horizontal front link pivoted at its front end, type bar, and connections between the front link and the type bar; means for operatively connecting the key lever and the front link which comprises projections on said key lever which constantly engage the upper and lower edges of the front link.

7. In a type action including a key lever, a substantially horizontal front link pivoted at its front end, type bar, and connections

between the front link and the type bar; means for operatively connecting the key lever and the front link which comprises projections on the key lever having a constant sliding engagement with the upper and lower edges of the front link.

8. In a type action including a key lever, a substantially horizontal front link pivoted at its front end, type, bar, and connections between the front link and the type bar; means for operatively connecting the key lever and the front link which comprises projections on said key lever one of which engages a straight upper edge and the other of which engages a cam portion on the lower edge of the front link.

9. In a type action including a key lever, a substantially horizontal front link pivoted at its front end, type bar, and connections between the front link and the type bar; means for operatively connecting the key lever and the front link which comprises projections on said key lever arranged in a line at an angle to the vertical and to the front link, and having constant sliding engagement with the upper and lower edges of the front link so that the return movement of the key lever is limited by said projections.

10. In a type action including a key lever, a substantially horizontal front link pivoted at its front end, type bar, and connections between the front link and type bar; means for operatively connecting the key lever and the front link which comprises an extension of the key lever and projections from one of said parts which engage opposite sides of the other part.

In testimony whereof, I have hereunto subscribed my name.

EDWARD B. HESS.