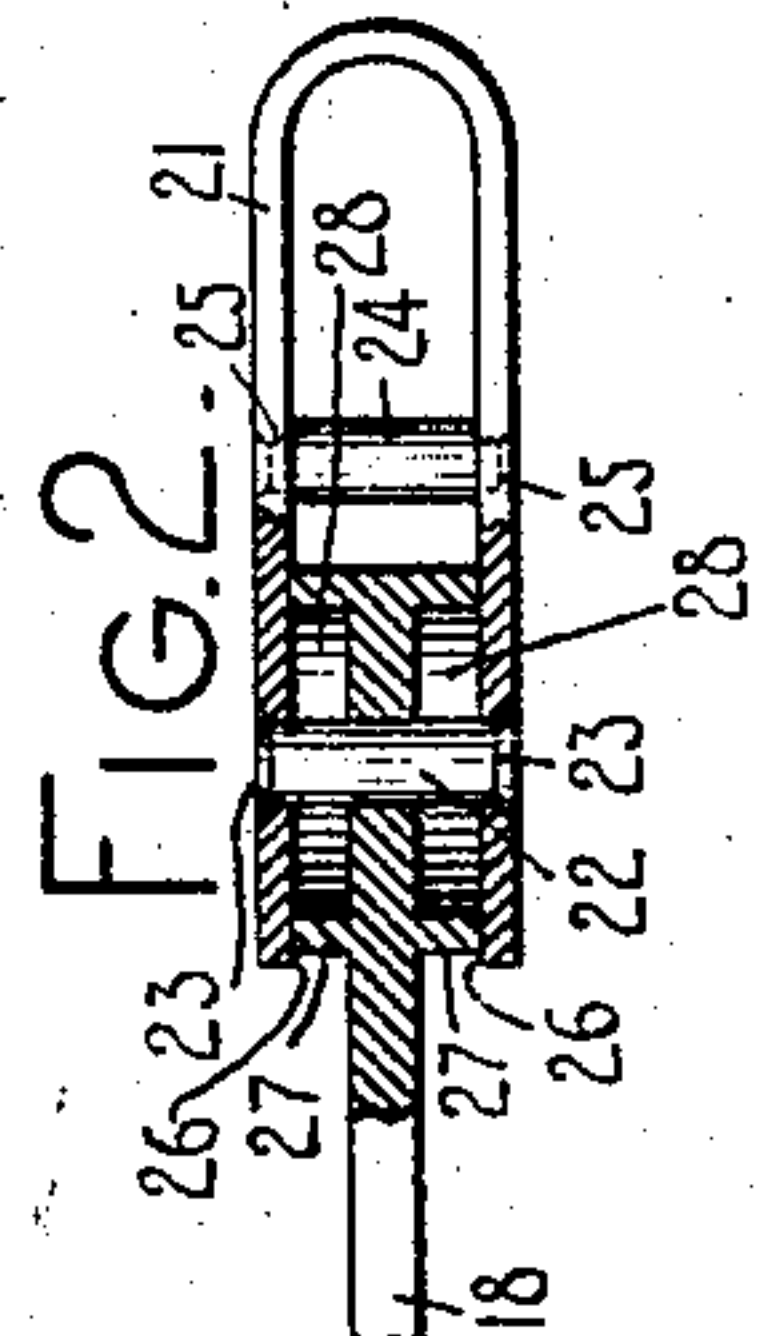
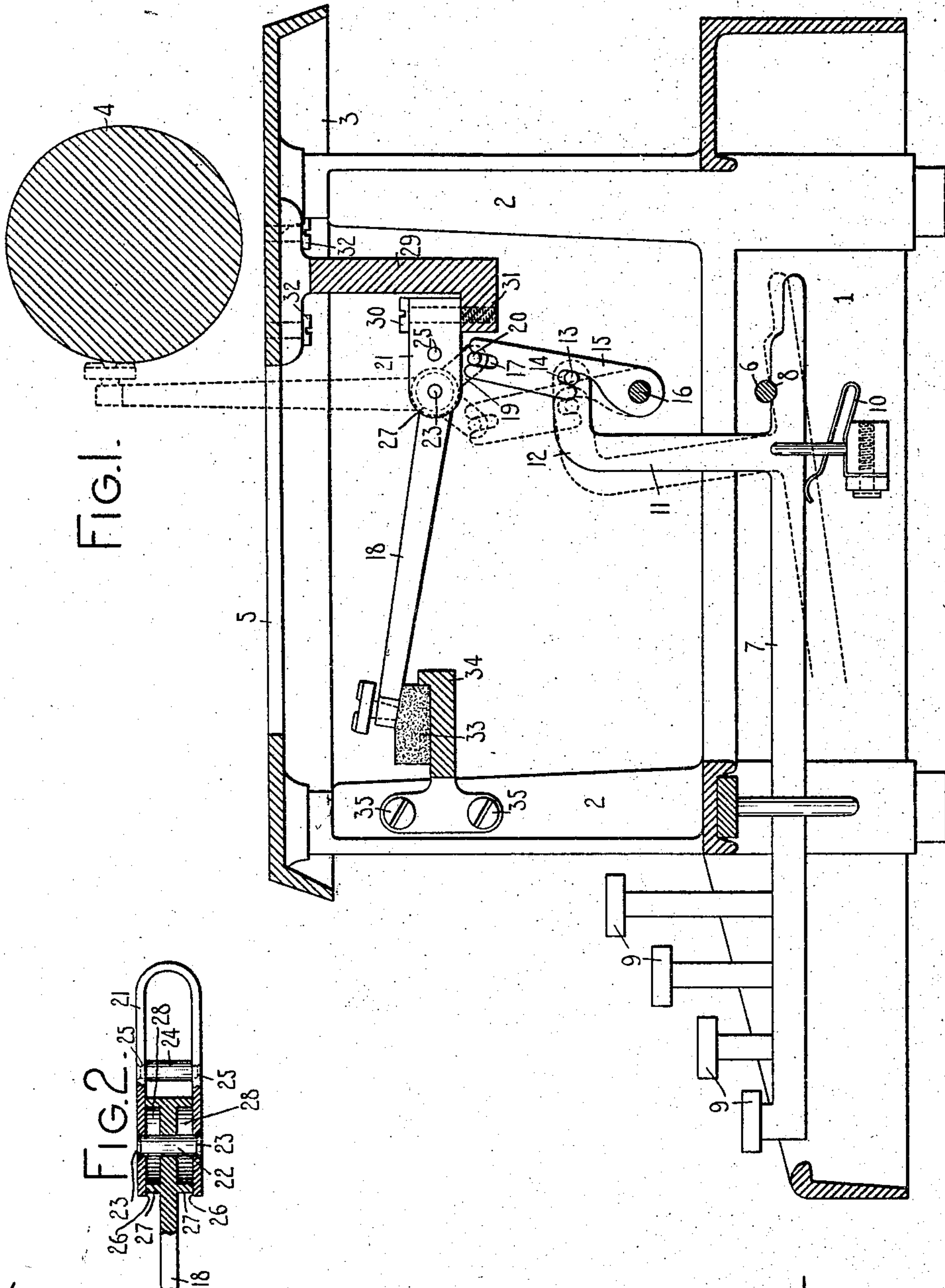


No. 886,392.

PATENTED MAY 5, 1908.

C. A. MOREY.
TYPE WRITING MACHINE.
APPLICATION FILED MAY 6, 1904.



WITNESSES:

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CHARLES A. MOREY, OF MOHAWK, NEW YORK, ASSIGNOR TO THE MONARCH TYPEWRITER COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

No. 886,392.

Specification of Letters Patent.

Patented May 5, 1908.

Application filed May 6, 1904. Serial No. 206,651.

To all whom it may concern:

Be it known that I, CHARLES A. MOREY, citizen of the United States, and resident of Mohawk, in the county of Herkimer and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to typewriting machines and more particularly to the type actions thereof, and the object of my invention is to provide a simple, efficient and easy type action and one in which the individual parts may be readily assembled and disconnected and removed when desired without the necessity of dismounting other parts of the structure.

To the above and other ends which will hereinafter appear, my invention consists in the features of construction, arrangements of parts and combinations of devices to be hereinafter described and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a central vertical front to rear sectional view of sufficient number of parts of one form of typewriting machines to illustrate my invention in its application thereto. Fig. 2 is an enlarged fragmentary plan view, partly in section, of a type bar and hanger.

While I have shown my invention applied to a front-strike or "visible" machine, it should be understood that so far as certain features of my invention are concerned they may be applied to various styles of typewriting machines.

The frame of the machine comprises a base 1, corner posts 2 and a top plate 3, and a suitable carriage (not shown) is mounted above the top plate and carries a platen 4. The top plate of the machine is cut away or apertured at 5 to enable the type bars to move from the normal position represented in full lines to the printing position indicated in dotted lines in Fig. 1. A pivot rod 6 extends from side to side of the machine and is secured to the base and key levers 7 are notched at 8 in order to cooperate with the pivot rod and to fulcrum thereon. Each key lever is provided with a finger key 9 and a restoring spring 10 cooperates with the key lever to restore it to normal position and to maintain it against the fulcrum rod 6. Each key lever has an upwardly extending arm or projection 11 that extends rearwardly at the upper end

portion thereof, as indicated at 12, and carries a laterally extending pin 13 which is received in a slot 14 of an upright straight sub-lever 15. Each sub-lever vibrates fore and aft of the machine on a fixed pivot 16 near one end thereof and above the key lever. The upper end of each sub-lever has an upwardly extending open ended slot 17 therein; the diameter of which is substantially uniform throughout its length. It will be observed that the pin and slot connection between the key lever and the sub-lever is intermediate of the ends of the sub-lever and that the slot 14 is in the nature of an upright slot and is open ended and inclined to the length of the sub-lever and thus affords a means for effecting a ready connection and disconnection between each key lever and its associated sub-lever. Each type bar 18 has a crank arm or heel 19 that is provided with a laterally projecting pin 20 which is received within the slot 17 of the associated sub-lever.

From an inspection of the drawing it will be observed that the point in the sub-lever where connection is made directly with the type bar, the fixed pivot 16 of the sub-lever and the point of connection between the key lever and sub-lever are in substantial alignment.

Each type bar is pivoted to a substantially U-shaped single piece of sheet metal hanger 21 by a pivot pin 22 which is riveted at its ends 23 to the side arms of the hanger. A spacing stud 24 is formed with circumferential shoulders near the ends thereof where the body of the stud joins the reduced ends and the stud extends between the arms of the U-shaped hanger in order to maintain them properly spaced apart. The reduced ends of the spacing stud extend through openings in the hanger arms and are riveted at 25 to the hanger arms in order to securely unite the arms at the point of connection formed by the spacing stud. The inner surfaces of each hanger, where they cooperate with the type bar, are formed as flat bearing faces 26 and each type bar is provided with oppositely disposed outwardly extending circular flanges, ribs or projections 27 which bear at the outer edges thereof against the flat bearing faces of the hanger, thus forming close joints with the bearing faces of the hanger which tend to prevent the admission of dust, grit or rubbings which may drop from the front face of the platen to the pivotal bearings of the type

bars. It will be seen that the circular ribs or flanges are concentric to the pivot 22 and form cylindrical housings on each side of the pivotal bearing between the type bar and pivot, and that inclosed chambers 28 are formed on opposite sides of the bearing between the type bar and its pivot. The circular flanges 27 thus project outwardly from the type bar and overlap the pivotal bearing between the type bar and pivot 22 and prevent the admission of dust to said bearing. The inclosed chambers 28, between the cheek plates of the hanger and formed in part by the flanges 27, may contain a lubricant for the type bar bearings. By a further heading up of the pivot pin or rivet 22 the cheek plates may be brought closer together, thus compensating for any wear which may take place between the bearing edges of flanges 27 and the cheek plates of the hanger, and so as to prevent lateral deflection of the type bar during the printing operation thereof, which deflection would result in improper alinement of the printed characters. The position of the pivot pin 22 and the flanges 27 which are concentric therewith enables the cheek plates of the hanger to be drawn together, by a further up-setting of the pin or rivet 22, in such a manner as to afford a uniform contact between the bearing edges of the flanges and the inner bearing faces of the hanger, and the spacing stud or pin 24 tends to prevent an undue pressure of the side arms of the hanger being exerted upon the bearing edges of the flanges 27. By reason of the disposition of the circular flanges at a considerable distance from the pivotal center of the type bar, said flanges in their coöperation with the bearing faces of the hanger effectually prevent a lateral deflection of the bar during the printing movements thereof and accurately guide the type bar in a radial plane.

Each type bar is secured to a type bar segment 29 by a headed screw 30; the head of the screw bearing on the upper edge of the hanger while the stem of the screw projects through the hanger and is received in a threaded opening in a flange 31 which projects forwardly from the lower edge of the segment. The segment itself may be secured to the top plate of the machine by screw 32. The forward ends of the type bars rest upon a pad 33 supported by a member 34 secured by a screw 35 to the frame of the machine.

From the foregoing description it will be understood that each individual type bar may be readily connected to or disconnected from its associated sub-lever by merely seating the pin 20 in or removing it from the upright slot 17 in the sub-lever, when the screw 30 that secures the hanger in place is removed. A depression of the rear end of a key lever against the tension of its spring 10 will displace the bearing portion 8 of the key

lever from its fulcrum rod and will remove the pin 13 from the inclined slot in the associated sub-lever, so that the key lever may be readily connected to or disconnected from the sub-lever.

In the operation of the machine a depression of a key lever will produce a forward movement of the associated sub-lever around its fixed pivot 16 to the dotted line position shown in Fig. 1, and this movement is effective to turn the type bar on its pivot central to the printing position. When pressure on the finger key is released, the parts will be restored to their normal positions by the restoring spring 10.

Various changes may be made without departing from the spirit of my invention and certain features thereof may be employed without others.

What I claim as new and desire to secure by Letters Patent, is:—

1. In a typewriting machine, the combination of an upwardly and rearwardly striking type bar, an upright sub-lever that vibrates fore and aft of the machine on a fixed pivot and which is directly connected with the type bar by a pin and slot connection, a key lever, and a pin and slot connection between the key lever and sub-lever, the point on the sub-lever where connection is made with the type bar, the fixed pivot, and the point of connection between the key lever and sub-lever being in substantial alinement.

2. In a typewriting machine, the combination of an upwardly and rearwardly striking type bar, an upright sub-lever that vibrates fore and aft of the machine on a fixed fulcrum and which is directly connected with the type bar by a pin and slot connection, a key lever, a pin and slot connection between the key lever and sub-lever, said pin and slot connection being situated intermediate the ends of the sub-lever, the fulcrum of the sub-lever, the upper end of said sub-lever and the point of connection between the key lever and sub-lever being substantially in alinement with one another.

3. In a typewriting machine, the combination of an upwardly and rearwardly swinging type bar, an upright sub-lever directly connected thereto and mounted to vibrate fore and aft of the machine on a fixed pivot, a key lever, and a pin and slot connection between said key lever and sub-lever, the slot formed in one of said members extending through one side edge thereof to provide an open-mouth slot for readily disconnecting the parts, the point on the sub-lever where connection is made to the type bar, the fixed pivot and the point of connection between the key lever and sub-lever being in substantial alinement.

4. In a typewriting machine, the combination of an upwardly and rearwardly swinging type bar, an upright sub-lever operatively

connected thereto by a pin and slot connection which affords a disconnection between the type bar and sub-lever, a fixed pivot on which said sub-lever vibrates fore and aft of the machine, a key lever, and a pin and slot connection between said sub-lever and key lever, the slot being inclined to the length of the part in which it is formed and open-ended to afford a disconnection between the key lever and sub-lever, and the pin and slot connection between the sub-lever and type bar, the fixed pivot, and the pin and slot connection between the key lever and sub-lever being in substantial alinement.

5. In a typewriting machine, the combination of an upwardly and rearwardly swinging type bar, an upright sub-lever with an upwardly extended open-ended slot in the upper end thereof which is of substantially the same diameter throughout its length, a pivot pin that is seated in said slot and forms a connection between the type bar and sub-lever, a fixed pivot on which said sub-lever vibrates fore and aft of the machine, a key lever, a pin and slot connection between said sub-lever and key lever, the slot in one of said members being upright and the pin on the other member working in said slot, the slot in the upper end of the sub-lever, the fixed pivot, and the pin and slot connection between the key lever and the sub-lever being in substantial alinement.

6. In a typewriting machine, the combination of an upwardly and rearwardly swinging type bar, an upright substantially straight sub-lever with an upwardly extending open-ended slot in the upper end thereof, a pivot pin that is seated in said slot and connects the type bar with the sub-lever, a fixed pivot arranged above the key lever and on which the sub-lever vibrates fore and aft of the machine, and a pin and slot connection between the key lever and sub-lever, the slot of said last-mentioned connection being upwardly disposed and the pin on the other member working in it; said slot in the end of the sub-lever, the fixed pivot and the pin and slot connection between the key lever and sub-lever being in substantial alinement.

7. In a typewriting machine, the combination of an upwardly and rearwardly swinging type bar, an upright sub-lever pivoted at its lower end on a fixed pivot and adapted to swing fore and aft of the machine and operatively connected at its upper end with the type bar by a pin and slot connection, a key lever arranged beneath the pivot of the sub-lever and having a portion thereof that connects with the sub-lever intermediate of the ends thereof by a pin and slot connection; the pin and slot connection at the upper end of the sub-lever, the fixed pivot on which the sub-lever moves, and the pin and slot connection between the key lever and sub-lever being in substantial alinement.

8. In a typewriting machine, the combination of an upwardly and rearwardly swinging type bar, an upright sub-lever pivoted at its lower end on a fixed pivot and adapted to swing fore and aft of the machine and directly connected at its upper end with the type bar by a pin and slot connection, the slot in one of said members being an open ended slot to afford a ready disconnection between the type bar and hanger, a key lever arranged beneath the pivot of the sub-lever and having an upwardly and rearwardly extending projection that connects with the sub-lever intermediate of the ends thereof by a pin and slot connection, the slot in one of said members being an open ended slot to afford a ready disconnection between the key lever and sub-lever; the pin and slot connection at the upper end of the sub-lever, the fixed pivot on which the sub-lever moves and the pin and slot connection between the key lever and sub-lever being in substantial alinement.

9. The combination of a type bar, a hanger, and a pivot pin that connects the type bar and hanger, one of said type bar and hanger parts being bifurcated to receive the other and having inner flat bearing faces, the member that is received within the bifurcated part having oppositely disposed outwardly projecting circular flanges that bear at their outer edges against the flat bearing faces of the bifurcated member and form cylindrical housings concentric with the pivot and which protect the pivotal bearing between the type bar and hanger from dust and form chambers on opposite sides of the part that is received within the bifurcated member and between the walls of said bifurcated member.

10. The combination of a bifurcated hanger having flat oppositely disposed bearing faces, a type bar having circular outwardly or transversely extending flanges on opposite sides of the type bar and the outer bearing edges of which flanges cooperate with the flat bearing faces on the hanger; and a pivot that extends through the type bar and hanger centrally of said circular flanges and unites the type bar and hanger.

11. The combination of a substantially U-shaped sheet metal hanger having flat oppositely disposed bearing faces, a spacing stud that extends between the arms of said hanger, a type bar having circular outwardly extending flanges on opposite sides thereof and the outer bearing edges of which cooperate with the flat bearing faces on the hanger, and a rivet that constitutes a pivot which extends through the type bar and hanger centrally of said circular flanges and unites the type bar and hanger.

12. The combination of a substantially U-shaped hanger having inner flat bearing faces, a type bar that is received between the

arms of the hanger, a rivet that extends through the type bar and hanger and unites the two and forms a pivotal bearing for the type bar, and circular flanges that are concentric to said rivet and project outwardly in opposite directions from the type bar and bear at the edges thereof against the flat bearing faces of the hanger and form cylindrical housings that protect the pivotal bearing between the type bar and hanger, said housings forming closed chambers around the pivot and between the type bar and hanger.

13. The combination of a single piece substantially U-shaped sheet metal hanger having inner flat bearing faces, a shouldered stud that extends between the arms of the hanger and which is riveted thereto, a type bar that is received between the arms of the hanger, a

rivet that extends through the type bar and hanger and unites the two and forms a pivotal bearing for the type bar, and circular flanges that are concentric to said rivet and project outwardly in opposite directions from the type bar and bear at the edges thereof against the flat bearing faces of the hanger and form cylindrical housings that protect the pivotal bearing between the type bar and hanger, said housings forming closed chambers around the pivot and between the type bar and hanger.

Signed at Mohawk, in the county of Herkimer, and State of New York, this 26 day of April A. D. 1904.

CHARLES A. MOREY.

Witnesses:

GEO. E. CASLER,
J. B. RAFTER.