

J. FELBEL.
TYPE WRITING MACHINE.
APPLICATION FILED DEC. 30, 1908.

1,061,957.

Patented May 13, 1913.

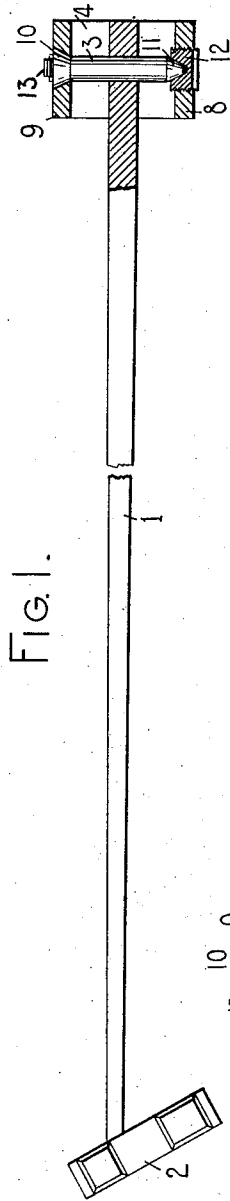


Fig. 1.

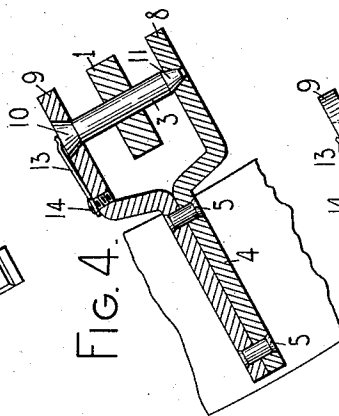


Fig. 2.

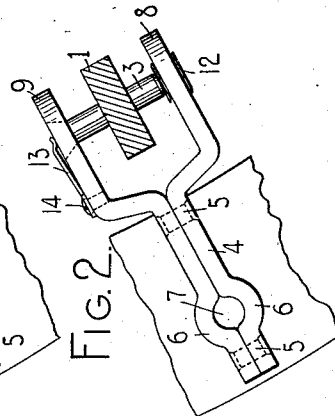


Fig. 3.

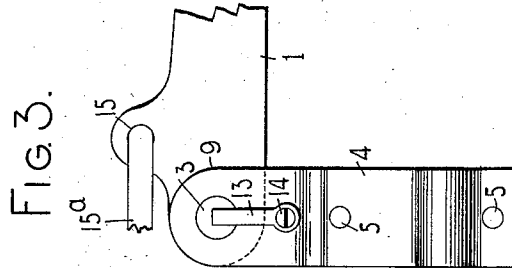


Fig. 4.

Fig. 5.

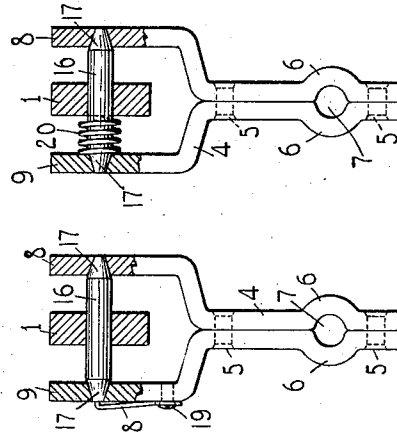
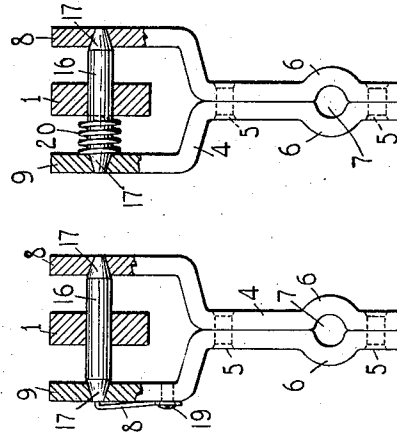


Fig. 6.



WITNESSES.

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TYPE-WRITING MACHINE.

1,061,957.

Specification of Letters Patent.

Patented May 13, 1913.

Application filed December 30, 1908. Serial No. 470,043.

To all whom it may concern:

Be it known that I, JACOB FELBEL, citizen of the United States, and resident of the borough of Manhattan, city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

10 My invention relates to typewriting machines and particularly to the type bar pivots and hangers.

My invention has for its principal object to effect certain improvements in the type bar pivots and bearings of typewriting machines and to overcome certain difficulties that have been experienced with these pivotal bearings in typewriting machines generally and especially in the pivots of some of the type bars of front-strike machines.

20 My invention consists in certain features of construction and combinations and arrangements of parts, all of which will be fully set forth herein and particularly pointed out in the claims.

In the drawings, all of which are on an enlarged scale, Figure 1 is an edge view of a type bar pivot and hanger embodying my invention, parts being shown in section. Fig. 2 is a front view of the hanger and pivot with the type bar in section. Fig. 3 is a side or face view of the hanger and the pivotal end of the type bar. Fig. 4 is a sectional view of a type bar and a slightly different form of hanger, the section being taken longitudinally of the hanger and through the axis of the pivot. Figs. 5 and 6 are front views respectively, partly in section, showing different ways of carrying out one feature of my invention.

Referring to Figs. 1, 2 and 3, 1 is the body portion of a type bar having a type block 2 mounted on its free end and having a transverse pivot pin 3 tightly secured in its pivotal end so that the pin and the type bar operate as a single part. The pivot pin 3 is journaled in two arms of a hanger 4 which preferably consists of two separate strips of metal suitably bent and rigidly connected together by rivets 5. The portions of the strips through which the rivets pass, lie face to face and constitute the stem of the hanger but at one part 6 each of the arms may be bent outward so as to form a hole 7 for the passage of a holding screw for

securing the hanger to the face of the segment or ring in a manner that will be understood. The two parts of the hanger are bent outward and thence into parallelism forming two hanger arms 8 and 9. The hanger arm 9 is formed with a tapered opening as shown, said opening having its greatest diameter at the outer face of the hanger arm and tapering to a smaller diameter toward the inner face of said hanger arm; and the cooperating end of the pivot pin 3 is formed with a correspondingly tapered head 10. The opposite end of the pivot pin is formed with a taper 11 which is received in a tapered depression or opening in a screw plug or bearing piece 12 which is threaded through the hanger arm 8 so as to render the bearing 12 adjustable with relation to the bearing in the hanger arm 9. It will be seen that the two bearings of the pivot pin 3 taper in the same direction instead of in opposite directions as usual. A spring 13 is secured to the outer face of the hanger arm 9 by a screw or rivet 14 and said spring at its free end bears against the head 10 of the pivot pin 3 and presses said pivot pin longitudinally, pressing the tapers 10 and 11 snugly into their respective bearings.

In cases where those type bars of a front-strike machine are somewhat removed from the middle of the segment so that the hanger stands at an inclination such, for example, as that illustrated in Fig. 2, the hanger is mounted with the arm 9 on the upper side so that the weight of the type bar itself tends to seat both the taper 10 and the taper 11 in their respective bearings, the spring 13 also having the same tendency. Heretofore with type bars in this situation and equipped with elongated pivots, when the pivot is loose either from faulty adjustment in the assembling of the machine or when it has become loose by wear, the weight of the type bar has kept the lower end of the pivot pin snugly seated in its bearings, the upper end being loose.

When the type bar is operated the link 15^a which is connected to the type bar at 15 (Fig. 3) gives a jerk on the bar which forces the pivot pin lengthwise in its bearings and causes the type bar to move toward the printing point in an irregular or untrue path, the type frequently striking above the line. Moreover, in such prior constructions the weight of the type bar has come

entirely on the lower end of the pivot pin so that the lower end of the pivot has had a tendency to wear rapidly. By the present construction, if the bearing 12 is an exact adjustment the weight is distributed between the upper and lower ends of the pivot pin and the wear is rendered more uniform. If the bearing 12 is adjusted a little too low, thus throwing all of the weight on the upper bearing, then most of the wear comes on the upper bearing and the effect of such wear is to cause the lower taper 11 to become seated more snugly into its bearing than before. If, on the other hand, the lower bearing is adjusted a trifle too high the weight comes on that, and the effect of wear is to bring the upper bearing into more perfect adjustment. In short, with a pivot constructed in this manner the tendency is for the bearing to wear into more perfect adjustment instead of wearing loose. The spring 13 takes up the wear automatically at all times and resists the tendency of the type bar to jump upward when the key is forcibly operated.

Fig. 4 is similar in all respects to the form shown in Figs. 1, 2 and 3, except that the stem of the hanger is straight so as to be seated in a slot in the segment and be held in position by a screw engaging the stem in its forward edge, and except further that the adjustable bearing 12 has been omitted and the lower end of the pin 3 is seated directly in a conical bearing opening in the hanger arm 8.

In Fig. 5 the pivot pin 16 is formed with tapers 17 at both ends, these tapers tapering toward the ends of the pins in the usual manner. The hanger is formed in the same way as in the other instances except that the bearing openings are made of a sort suitable to coöperate with tapers 17. In this instance a spring 18 is mounted on the outer face of one of the hanger arms by means of a screw 19 and this spring presses longitudinally on the pin 16. When this form of hanger is employed it is the intention that in the case of those type bars that are near the ends of the segment, the hanger arm having the spring 18 mounted thereon, shall be placed uppermost. In this form of the invention the spring 18 serves to overcome the tendency of the type bar when operated to move laterally and keeps the pin 16 snugly seated in its bearing in the lower hanger arm.

In Fig. 6 I have shown a form of the invention similar in all respects to that shown in Fig. 5 except that I have used a different form of spring. In this case the spring 20 is coiled about the pin 16 and is compressed between the body of the type bar 1 and the upper hanger arm.

It will, of course, be understood that various other changes may be made in the de-

tails of construction without departing from the invention.

In all of the forms shown the hanger is made in two pieces riveted together face to face. This construction has certain advantages over a construction in which the hanger is made of a single strip of sheet metal bent into a U-shape, or in which the hanger is made of a single piece milled or cut to form parallel arms. The present construction makes the stem of the hanger more rigid and moreover it enables the two parts of the hanger to be constructed separately and enables the bearing openings to be drilled and finished accurately after the hanger arms have been bent up and before they have been assembled. Where the hanger is made of a single piece bent into a U-form, if these bearing openings are made before the hanger is bent, it is difficult to get them into perfect register when the bending operation is performed. If, on the other hand, these hangers are bent first before the bearing openings are made or before they are finished, then it is difficult to get a tool in between the hanger arms and to get it accurately positioned so as to form the two bearing openings in perfect relation.

As far as some features of my invention are concerned the hanger may be made otherwise than shown.

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

1. In a typewriting machine, the combination of a type bar having a transverse pivot rigid therewith, a hanger in which both ends of said pivot are journaled, and a spring distinct from the hanger arms and type bar, said spring acting to press said pivot longitudinally.

2. In a typewriting machine, the combination of a type bar having a transverse pivot, a hanger having bearings for said pivot, and a spring mounted on said hanger and pressing against one end of the pivot.

3. In a typewriting machine, the combination of a type bar having a transverse pivot with tapered ends, a hanger having tapered bearings for the tapered ends of said pivot, and a spring pressing said pivot lengthwise.

4. In a typewriting machine, the combination of a type bar having a transverse pivot tapered toward a point at one end and with a tapering head at the other end, a two-armed hanger having a tapered bearing depression in each of its arms, one for the reception of said tapered end and the other for the reception of said tapered head, and a spring tending to press said pivot into its bearings.

5. In a typewriting machine, the combination of a type bar having a transverse pivot with a tapered head at one end and tapering toward a point at the other end, a

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two-armed hanger having in one arm a bearing opening for said tapered head, an adjustable bearing piece for the other end of said pivot in the other arm of said hanger, and a spring pressing said pivot lengthwise into its bearings.

6. In a front-strike typewriting machine, the combination of a type bar having a transverse pivot set at an inclination to the horizontal, the upper end of said pivot having a head, a two-armed hanger, the head of said pivot bearing against the upper arm of the hanger and the lower end of the pivot journaled in the lower arm of the hanger, and a spring pressing down on said pivot.

7. In a typewriting machine, the combination of a type bar having a transverse pivot externally tapered at both ends, the tapers being in the same direction and both integral with the pivot, and a type bar hanger having tapered bearings corresponding with the tapered ends of said pivot and constituting the only bearings for said pivot.

8. In a typewriting machine, the combination of a type bar having a transverse pivot comprising an enlarged integral tapering head at one end and an integral tapering point at the other end, and a hanger

having tapered bearings to match the tapers of said pivot and constituting the only bearings for said pivot.

9. In a typewriting machine, the combination of a type bar having a pivot, and a type bar hanger having pivot bearings internally tapered in the same direction, the pivot of the type bar having integral tapering ends corresponding with the taper of the bearings in the hanger and said pivot having bearing in said hanger only by said tapered ends.

10. In a front-strike typewriting machine, the combination of a type bar having a transverse pivot set at an inclination to the horizontal, the upper end of said pivot having a head, and a two-armed hanger, the head of said pivot bearing against the upper arm of the hanger and the lower end of the pivot journaled in the lower arm of the hanger.

Signed at the borough of Manhattan, city of New York, in the county of New York, and State of New York, this 26th day of December A. D. 1908.

JACOB FELBEL.

Witnesses:

CHARLES E. SMITH,
E. M. WELLS.