T. DE PRINS & D. RIGA.

TYPE WRITING MACHINE.

APPLICATION FILED OCT. 7, 1909.

962,079. Patented June 21, 1910.

FIG. 6.

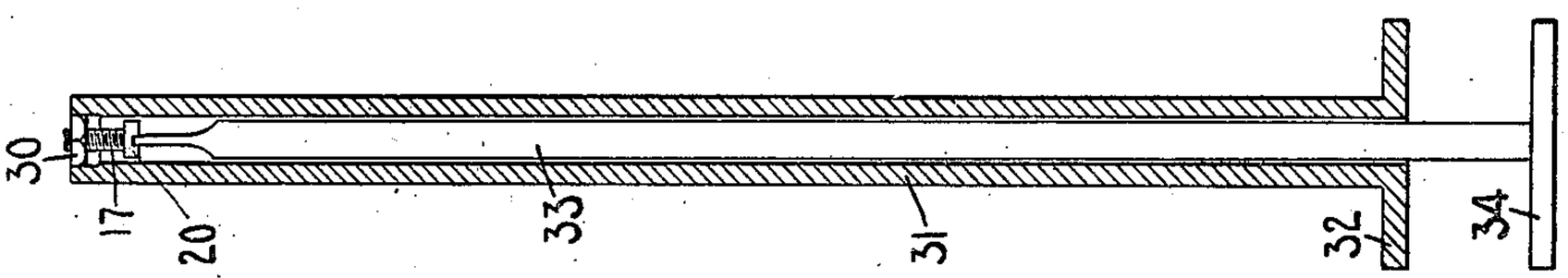


FIG. 2.

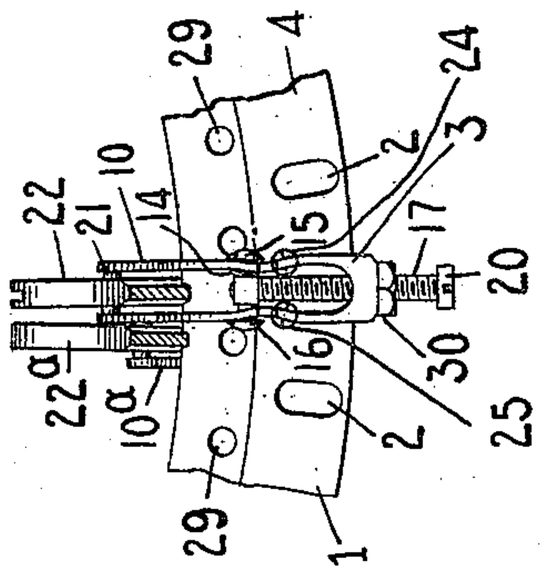


FIG. 5.

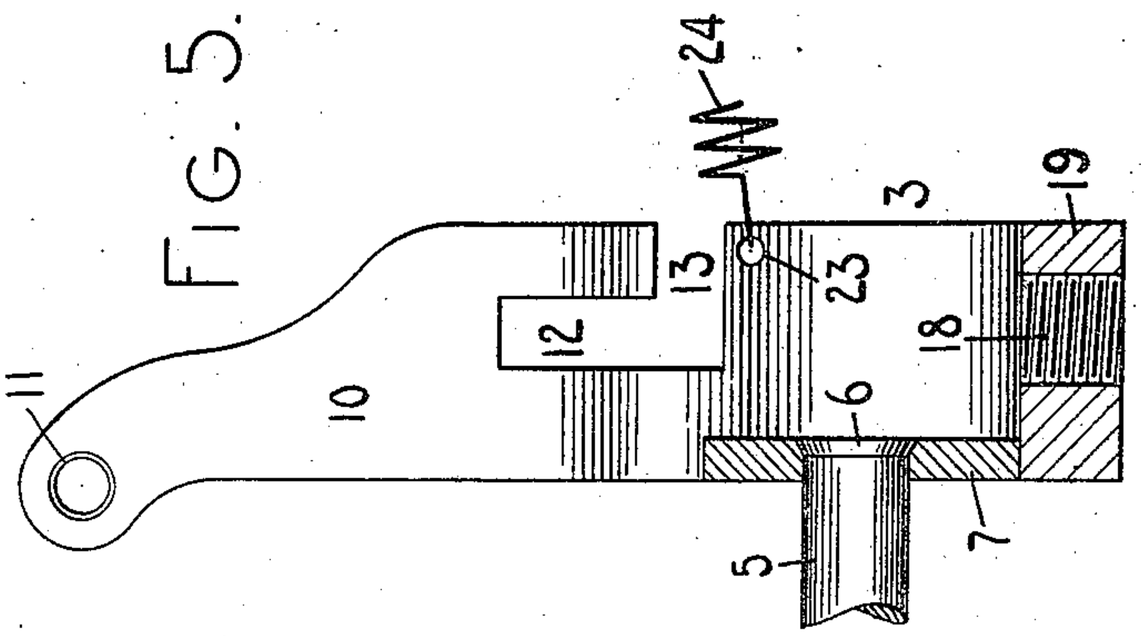


FIG. 1.

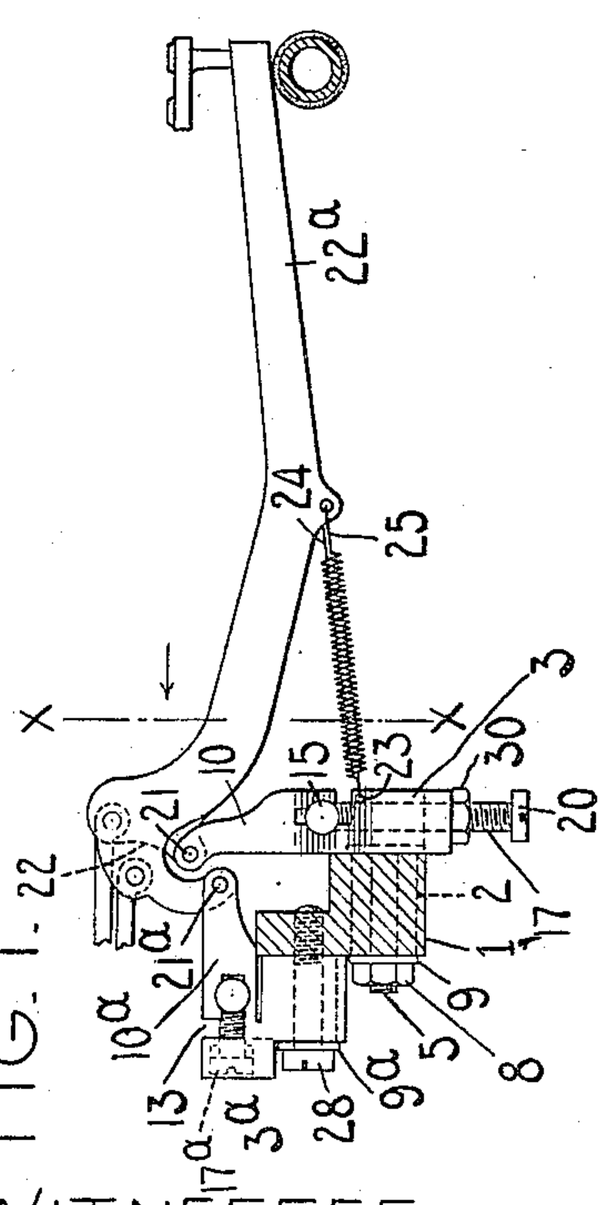


FIG. 3.

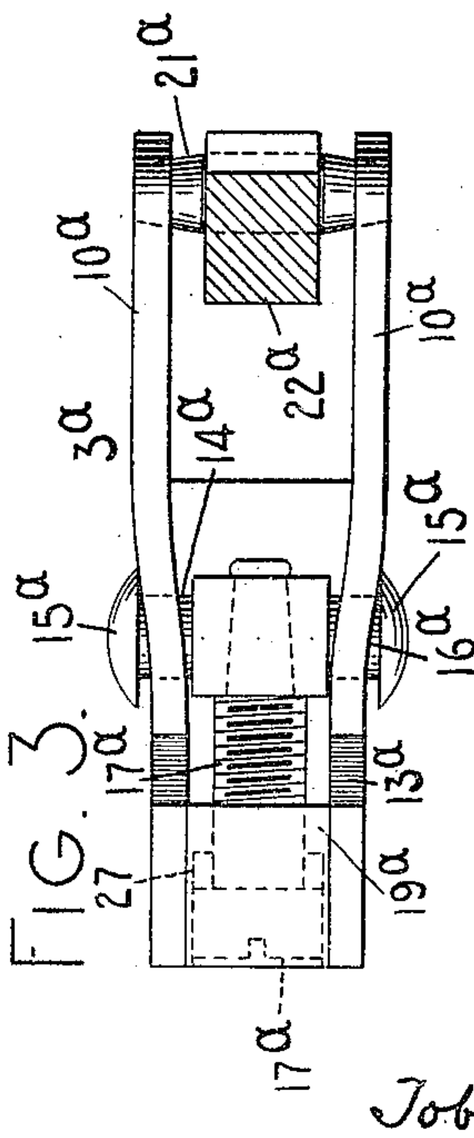
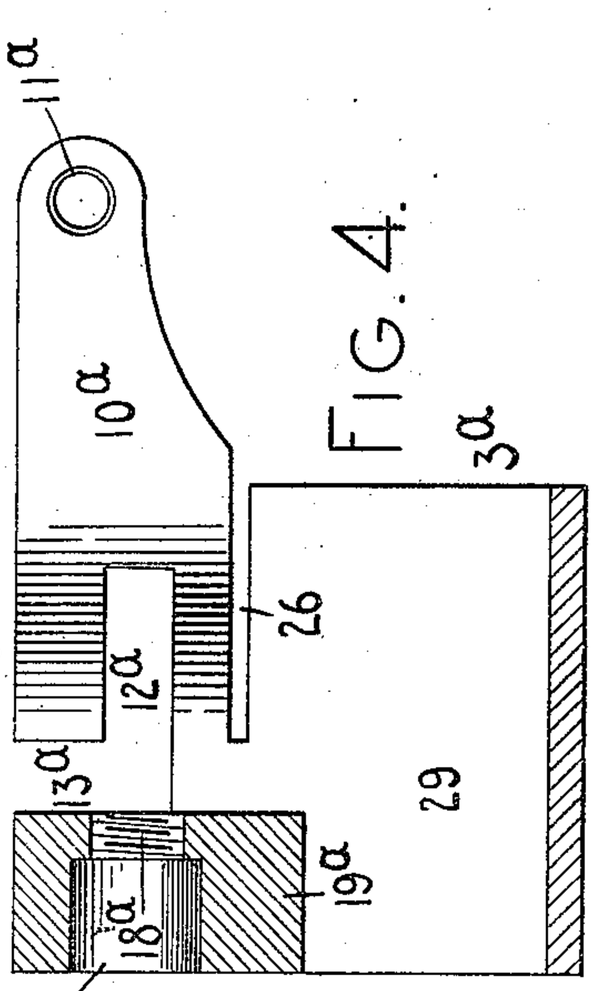


FIG. 4.



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UNITED STATES PATENT OFFICE.

TOBIE DE PRINS, OF ANVARS, AND DIEUDONNÉ RIGA, OF HOBOKEN, BELGIUM, ASSIGNORS TO THE MONARCH TYPEWRITER COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

962,079. Specification of Letters Patent. Patented June 21, 1910.

Application filed October 7, 1909. Serial No. 521,617.

To all whom it may concern:

Be it known that we, TOBIE DE PRINS and DIEUDONNÉ RIGA, subjects of the King of Belgium, and residents, respectively, of Anvars, Belgium, and Hoboken, Belgium, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

Our invention relates to typewriting machines and more particularly to type bar hangers, and the main object of the invention is to provide simple and efficient means whereby the bearings for the type bars may be readily adjusted while the type bars and hangers are in place in the machine.

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

In the accompanying drawings wherein like reference characters indicate corresponding parts in the various views, Figure 1 is a fragmentary side view, partly in section, the view showing a plurality of type bars and their hangers mounted on a segment, together with the features of our invention embodied therein. Fig. 2 is a fragmentary, sectional view of the same, the section being taken on the line *x*—*x* of Fig. 1 and looking in the direction of the arrow at said line. Fig. 3 is an enlarged detail top plan view of one of the type bar hangers of the rear set with a type bar mounted therein, the type bar being shown in section. Fig. 4 is an enlarged detail central sectional view of the hanger shown in Fig. 3. Fig. 5 is an enlarged detail longitudinal central sectional view of one of the hangers of the forward set. Fig. 6 is a central sectional view of a tool which may be employed in adjusting the hanger arms of certain of the hangers, the view showing the manner in which the tool coöperates with the lock nut and adjusting screw.

The invention as shown is intended to be embodied in a Monarch machine which employs two series of upwardly and rearwardly striking type bars, but it should be understood that the invention may be embodied in various other styles of typewriting machines whether of the front-strike or other varieties.

The type bar segment 1 is similar to that employed in the Monarch machine, it being of stepped shape and provided with bearing faces to which two series of type bar hangers are secured, the hangers of one series being staggered relatively to the hangers of the other series. The segment may be mounted in the same manner as in the Monarch machine. In the present instance the segment 1 has a series of radially extending elongated slots 2 extending transversely therethrough fore and aft of the machine, a slot 2 being provided for each of the type bar hangers 3 of the forward set. These hangers are radially disposed on the segment and are secured to the forward face 4 thereof by screws 5 which extend horizontally through the slots or openings 2 from the front to the rear of the segment, one screw 5 being provided for each hanger 3. The forward end of each screw is headed at 6, the screw passing rearwardly through an opening in a cross piece 7 of the associated hanger 3 and having a threaded connection at its rear end with a nut 8 by which the hanger is clamped against the front face 4 of the segment. A washer 9 is interposed between each nut 8 and the rear face of the segment.

Each hanger 3 has bearing arms 10 provided with bearings 11 for the pivot of the associated type bar. The arms are also slotted longitudinally at 12 and transversely at 13 in order to receive an adjustable slide or connecting pin 14. Each pin 14 is headed at its ends as indicated at 15, the heads coacting with cam faces 16 formed on the bearing arms of the hangers, preferably by slighly bending the arms of the hangers as shown in Fig. 2. The middle portion of each slide or connecting pin 14 is enlarged and is apertured transversely through the enlarged portion to receive the reduced end of a screw 17, the upper end of the screw being slightly headed to operatively connect the slide 14 to the screw and still allow the screw to turn freely in the aperture in the slide. Each screw 17 is threaded through a tapped opening 18 (see Fig. 5) in a cross piece 19 which connects the hanger arms.

The head 20 of each screw 17 extends below the segment where unobstructed access is given thereto from the bottom or sides of the machine to enable the screws 17 to be readily adjusted on the hangers. An adjustment of each screw 17 serves to effect an adjustment of the associated slide or connecting pin 14 longitudinally of the slots 12 and longitudinally of the hanger arms 10. This adjustment of the pin 14 causes the corresponding hanger arms to be moved in substantially parallel planes toward or away from each other, depending on the direction of the movement of the connecting pin, the heads of the connecting pin coöperating with the cams 16 formed on the hanger arms. The result of this adjustment is to effect an adjustment of the bearings 11 relatively to the trunnion-like coned pivot 21 of the companion type bar 22, thereby properly regulating the bearings for the type bar and taking up any undue slack or lost motion in the bearings produced by wear or other causes. Both arms of each hanger are apertured at 23 to afford a connection therewith of restoring springs 24 and 25, one spring 24 being connected to a type bar 22 of what may be termed a front set of bars and the other spring 25 being connected to an adjacent type bar 22^a of what may be termed a rear set of bars.

The rear set of type bar hangers are constructed in substantially the same manner as the front set of hangers, although the hangers of the two sets or series are shaped somewhat differently and the hangers of the rear set are secured to the rear instead of to the front face of the segment. Parts of the hangers of the rear set which correspond to, or substantially correspond to, the hangers of the front set are designated by the same reference numeral with the addition of the exponent "a". Thus the slides or connecting pins 14^a of the hangers 3^a of the rear set may be moved in horizontally disposed slots 12^a in horizontally extending hanger arms 10^a and heads 15^a on each connecting pin coact with cams 16^a formed on the hanger arms, to adjust the bearings 11^a relatively to the pivots 21^a of a type bar 22^a of the rear set of type bars. Each slide or connecting pin 14^a is connected in the manner hereinbefore described with a screw 17^a received in a tapped opening 18^a in a cross piece 19^a that connects the hanger arms. The hanger arms 10^a are slotted at 26 to afford an adjustment of those portions of the arms which are provided with the bearings 11^a. The heads of the screws 17^a are received in countersunk openings 7 formed in the hangers. Screws 28 which secure the hangers 3^a to the rear face of the segment are received in tapped openings 29 in the segment, a washer 9^a being interposed between the head of each screw 28 and the rear side of the companion hanger 3^a. Each screw 28 passes through an enlarged opening 29 between the hanger arms of the associate hanger 3^a, thus affording an individual adjustment of each hanger. The heads of the screws 17^a are in the rear of the segment and unobstructed access thereto may be had from the rear of the machine.

We preferably provide lock nuts 30 on the screws 17 and in Fig. 6 we have shown a tool by which the screws 17 may be readily adjusted without disturbing or materially disturbing the lock nuts. From an inspection of Fig. 6 it will be seen that this tool comprises a cylindrical wrench 31 adapted at one end to coöperate with a lock nut 30 and provided with a finger piece 32 at the other end by which the wrench may be turned or may be held to hold the nut against rotation during the adjustment of the companion screw 17. The wrench is adapted to receive a screw driver 33 in the center bore therein, the screw driver being coöperative at one end with a screw 17 to turn it and thus effect an adjustment of the hanger arms 10 while the associated lock nut is held by the wrench. The opposite end of the screw driver is provided with a handle or finger piece 34.

From the foregoing description it will be understood that we have provided comparatively simple and highly efficient means for effecting a relative adjustment of the arms of each hanger while the hangers are in place in the machine; that the adjustment between the hanger arms in the present instance is effected by bodily movement of the tie rod or pin 14 (or 14^a) in a direction transversely to its axis instead of turning on its axis as in some tie rods or screws heretofore devised; that the construction is such that there is little liability of the adjustment of hanger arms becoming deranged by the constant jar or vibration of the parts while the machine is in use, and that the adjusting means for the arms of each hanger are self-contained; that is to say, the adjusting means are embodied in and carried by the hanger itself and are independent of the means by which the hanger is secured to the segment.

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

1. In a typewriting machine, the combination of a hanger having bearing arms and a tapped opening, a slide coöperative with the hanger arms and arranged to be moved longitudinally of said arms to force them toward each other, and a screw received in the tapped opening in the hanger and cooperative with said slide to adjust it.

2. In a typewriting machine, the combination of a hanger having longitudinally slotted bearing arms, a slide arranged in said slots and adapted to force said bearing

arms toward each other, and means for moving said slide lengthwise of said slots and for holding it in its adjusted position.

3. In a typewriting machine, the combination of a hanger having slotted bearing arms, a slide received in the slots in the bearing arms and having heads at the ends thereof which coöperate with the bearing arms of the hanger to effect a relative adjustment between them, and a screw for adjusting said slide.

4. In a typewriting machine, the combination of a hanger having slotted bearing arms, a slide having headed ends, said slide being received in the slots in said bearing arms, cam faces between the bearing arms and the heads of said slide, and means for adjusting the slide in said slots and for retaining the slide in its adjusted position.

5. In a typewriting machine, the combination of a hanger having slotted bearing arms bent to provide cam faces thereon, a slide provided with heads on the ends thereof, said slide being received in the slots in the bearing arms and the heads of the slides coöperating with said cam faces to effect a relative adjustment of the bearing arms toward and away from each other, and means for adjusting the slide in said slots and for holding the slide in its adjusted position.

6. In a typewriting machine, the combination of a hanger having slotted bearing arms provided with cam faces on the outer sides thereof, said hanger also having a tapped opening therein, a slide provided with heads on the ends thereof which cooperate with the cam faces on the outer sides of the bearing arms, said slide being received in and removable from the slots in the bearing arms, and a screw received in the tapped opening in the hanger and operatively connected to said slide to adjust the same and hold the slide in its adjusted position.

7. In a typewriting machine, the combination of a type bar segment, two series of type bar hangers detachably secured thereto, the hangers of one series being staggered relatively to the hangers of the other series, self-contained means for effecting a relative adjustment between the bearing arms of each hanger, said hangers being so mounted that access to the adjusting means for the hangers of one series may be had from below the segment and access to the adjusting means for the hangers of the other series may be had from the rear of the machine.

8. In a typewriting machine, the combination of a type bar segment, two series of type bar hangers detachably secured thereto, the hangers of one series being staggered relatively to the hangers of the other series, self-contained means for effecting a relative adjustment between the bearing arms of each hanger, said adjusting means for the two series of hangers including adjusting screws, the screws for one series of hangers being disposed at substantially right angles to the screws of the other series of hangers, and the hangers being so mounted that unobstructed access may be had to said screws while they are in the machine, for effecting a relative adjustment of the arms of each individual hanger.

9. In a typewriting machine, the combination of a type bar segment, two series of type bar hangers detachably secured thereto, the hangers of one series being staggered relatively to the hangers of the other series, individual means for effecting a relative adjustment between the arms of each hanger, said means comprising a slide carried by each hanger and an individual screw for each slide, the said hangers being so mounted that unobstructed access to the said screws of one series of hangers may be had from below the segment and unobstructed access may be had to the said adjusting screws of the other series from the rear of the machine.

10. In a typewriting machine, the combination of a hanger having longitudinally slotted arms, and means for effecting a relative adjustment of the hanger arms, said means comprising a single connecting pin or member passing through the slots in and uniting the arms of said hanger, means for effecting an adjustment of said connecting member transversely of its axis, and means whereby such transverse movement of the connecting pin is operative to effect a relative adjustment of the hanger arms.

11. In a typewriting machine, the combination of a hanger having longitudinally slotted arms, and means for effecting a relative adjustment of the hanger arms, said means comprising a headed pin that extends between and extends through the slots in and unites the hanger arms, a screw for adjusting said pin transversely of its longitudinal axis, and means whereby said adjustment of said pin is effective to cause the hanger arms to be adjusted toward each other.

12. In a typewriting machine, the combination of a hanger having slotted arms and a tapped opening therein, and means for effecting a relative adjustment of the hanger arms, said means comprising a headed pin that extends between and unites the hanger arms, the heads of the pin being outside of the hanger arms, a screw received in the tapped opening in the hanger for adjusting said pin transversely of its longitudinal axis in the slots in the hanger arms, and means whereby said adjustment of said pin is effective to cause the hanger arms to be adjusted toward each other.

13. In a typewriting machine, the combination of a hanger having bearing arms rigidly connected together at one end of the hanger, each of said hanger arms being

formed with a longitudinal slot, a slide arranged in the slots and connecting said arms together intermediate their ends and cooperating with the arms to force them toward each other, and means separate from but connected to said slide for effecting a bodily adjustment thereof and for holding it in its adjusted position.

Signed at Antwerp, Belgium, this 20th day of September, 1909.

TOBIE DE PRINS.
DIEUDONNÉ RIGA.

Witnesses:
G. De Lersy,
A. Adams.