

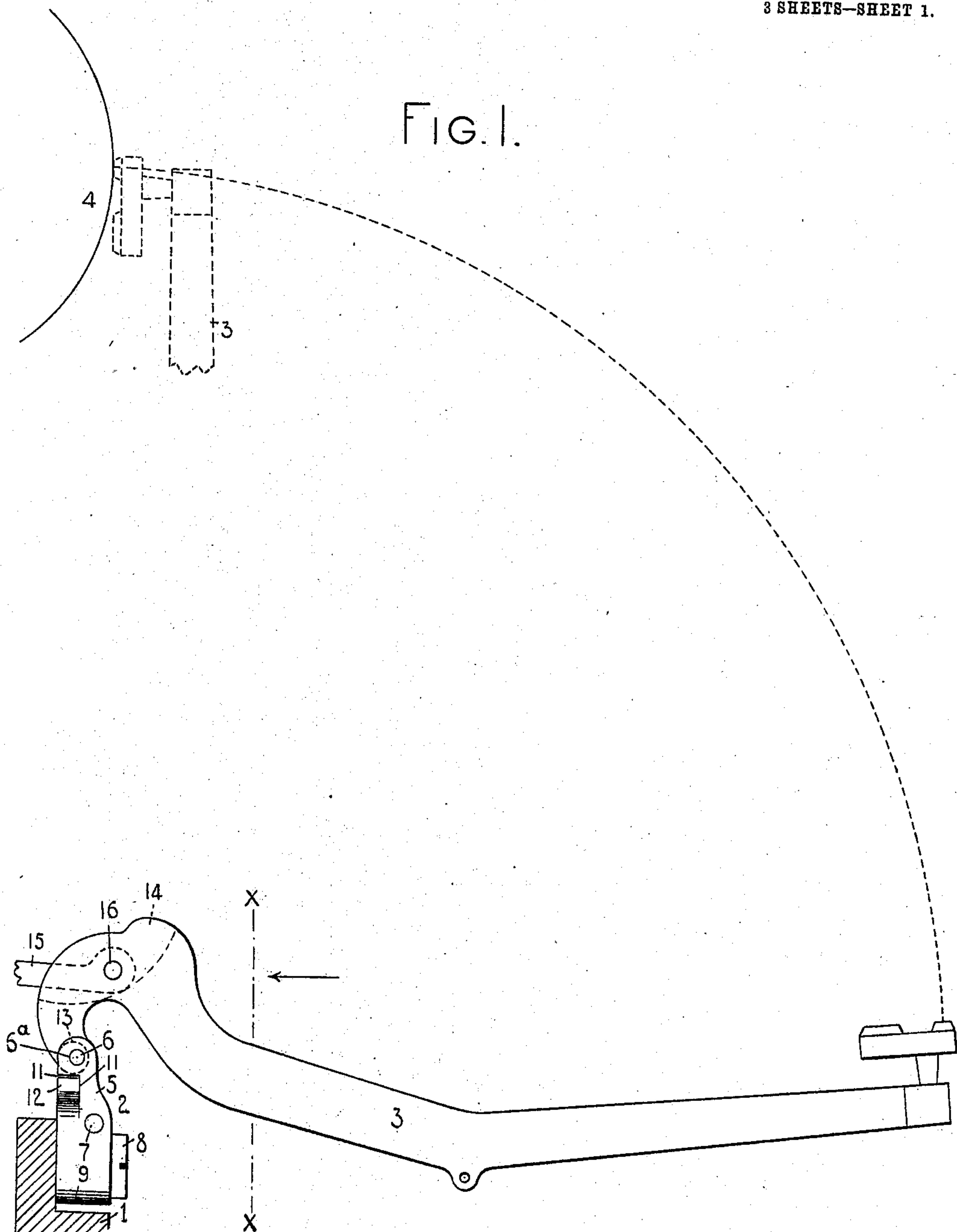
No. 885,619.

PATENTED APR. 21, 1908.

J. B. HENNESSY.
TYPE WRITING MACHINE.
APPLICATION FILED FEB. 20, 1907.

3 SHEETS—SHEET 1.

FIG. 1.



WITNESSES:

E. M. Wells
Charles Smith

INVENTOR

John B. Hennessy

By Jacob F. Fabel

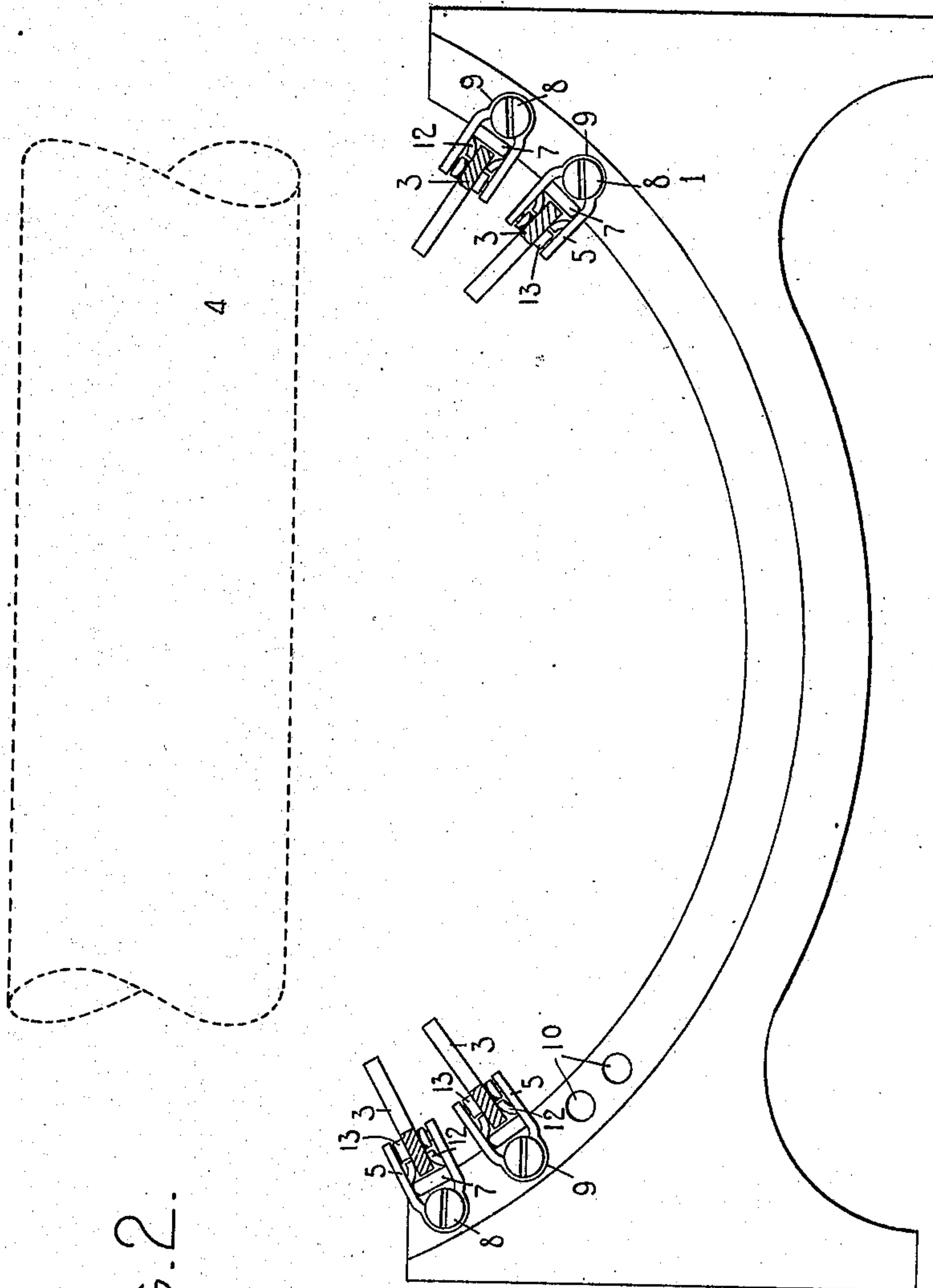
HIS ATTORNEY

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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

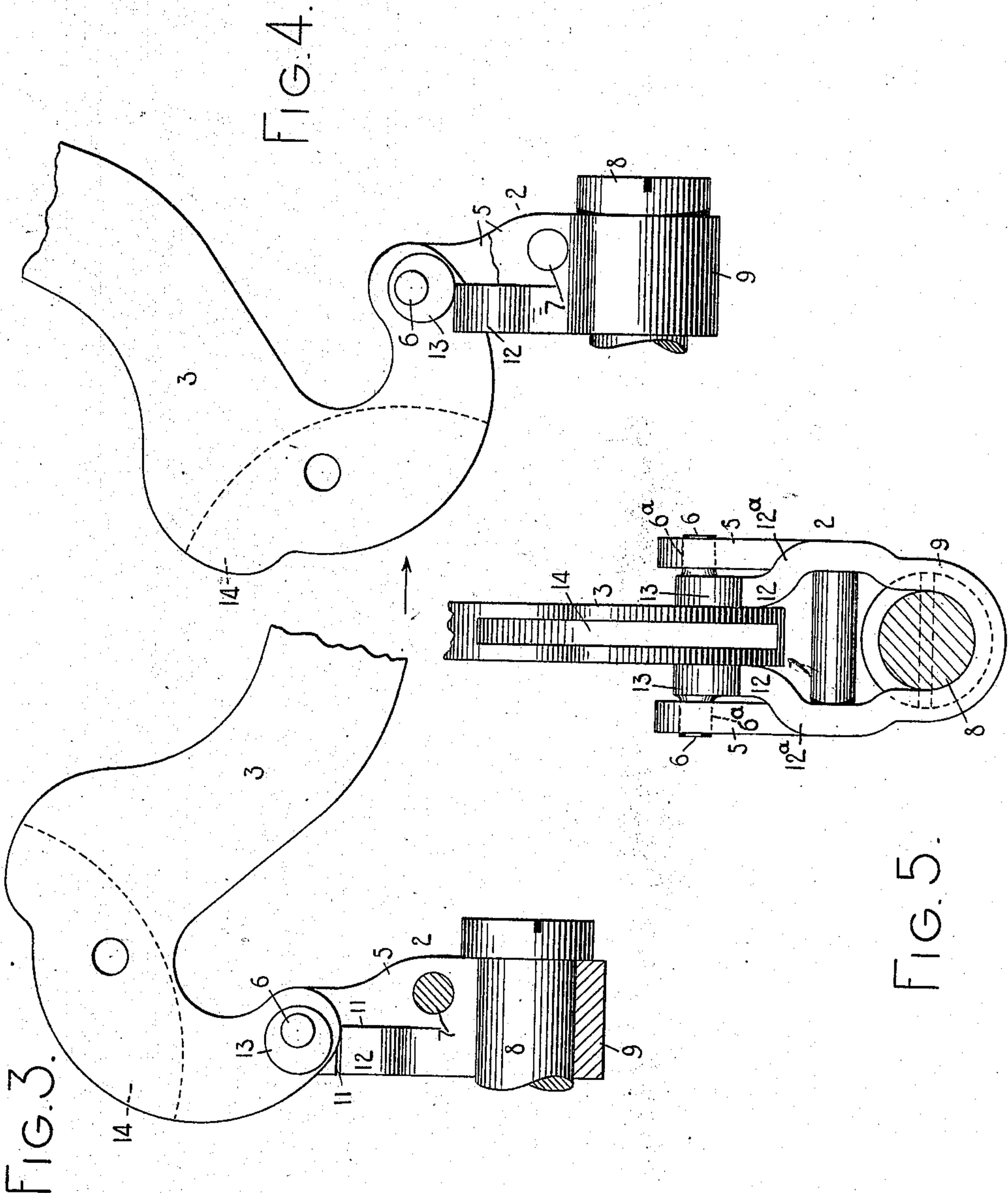


FIG. 3.

FIG. 4.

FIG. 5.

WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN B. HENNESSY, OF NEW YORK, N. Y., ASSIGNOR TO THE MONARCH TYPEWRITER COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

No. 885,619.

Specification of Letters Patent.

Patented April 21, 1908.

Application filed February 20, 1907. Serial No. 358,406.

To all whom it may concern:

Be it known that I, JOHN B. HENNESSY, citizen of the United States, and resident of the borough of Brooklyn, city of New York, in the county of Kings 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 type bar and hanger constructions and the objects of said invention are to provide simple and efficient means for preventing lateral and also end-wise movements of the type bars and thus preserving the alinement of the writing.

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

In the accompanying drawings, Figure 1 is an enlarged detail side elevation of a type bar and hanger embodying my invention, fragments of the type bar segment and platen being shown in this view. Fig. 2 is a transverse sectional view of the same taken on the line $x-x$ of Fig. 1 and looking in the direction of the arrow at said lines, four type bars only being shown in this view. Fig. 3 is an enlarged side elevation partly in section of the type bar and hanger, the type bar being shown in the normal position. Fig. 4 is an enlarged fragmentary side elevation of a type bar and hanger, the type bar being shown in printing position. Fig. 5 is an enlarged fragmentary rear elevation of a type bar and hanger, the parts being shown with the type bar in the printing position and as viewed from the direction of the arrow in Fig. 4.

In the various views, like reference characters indicate corresponding parts.

When wear occurs at the pivot bearing, the type bar is apt to move laterally or end-wise or both as it swings to the printing position and thus impair the alinement of the type impressions.

By my present invention I provide means for reducing the liability of the type bar bearings to wear and for holding the type bar in proper working position even though some wear has occurred, and thus prevent or reduce to the minimum defective alinement of the writing.

The segment 1 constitutes a support for a series of segmentally arranged radially disposed type bar hangers 2 to which a series of type bars 3 are pivoted, the type bars striking upwardly and rearwardly against the front face of a platen 4. Each hanger, designated as a whole by the reference numeral 2, preferably comprises a bifurcated member of substantially U-shape and made of sheet metal. The pivot bearing arms 5 of each hanger are spaced apart to receive a type bar between them and to provide widely separated bearings for the pivot of the type bar, said pivot comprising trunnion-like projections 6 which extend outwardly from opposite sides of the type bar and are seated in bearings or openings 6^a in the hanger arms. A rivet 7 extends between the arms of each hanger to prevent separation of the arms. The shank of a headed screw 8 passes through the space between the arms of each hanger at the root portion 9 thereof, the threaded end of the screw taking into a tapped hole 10 in the segment and the head of the screw bearing against the front face of the hanger to secure it in place.

Each hanger arm is cut, as indicated at 11 in Fig. 3, to provide a finger or abutment 12, which is bent inwardly at its free end as shown in Fig. 5 so that the inner side of the finger is adapted to bear against a side of the type bar and guide and support it as it approaches the printing position. An eccentric 13 is provided on each side of the type bar. These eccentrics may be formed either integral with the trunnions or on the sides of the bar proper. They cooperate with ends of the fingers 12 to support the pivot and type bar in the proper pivotal position at the printing moment. Furthermore, if there be any wear on the pivot or of its bearing causing looseness or end play or shake of the type bar, the eccentrics will operate with the fingers to lift the type bar to proper pivotal position, thus for the printing instant automatically taking up the looseness and preserving the alinement. The construction and arrangement of the parts are such that the eccentrics, supports or contacts 13 are normally out of engagement with the free ends of the fingers 12, as indicated in Fig. 3.

As the type bar moves to the printing position the highest portions of the eccentrics are moved downwardly and at or about the time the type prints the eccentrics are brought

into contact with the ends of the fingers 12, and the type bar is thus forced to be in proper working position at the moment of type impression. By this same movement the heel of the type bar is brought between the fingers 12 so that the sides of the fingers bear upon opposite sides of the heel of the type bar and guide it transversely in its printing movement.

When the type bar has reached the printing position, as shown in Fig. 4, the eccentrics 13 will have been brought into contact with the ends of the fingers 12 and the heel of the type bar will be embraced by the sides of the fingers so as to prevent any lateral or end-wise movement whatever of the type bar, should there be any wear or looseness at the pivotal bearings.

It will be understood that the sides of the fingers contacting with the heel of the type bar at a considerable distance from the pivotal center of the type bar act as an efficient guide for the type bar. As neither the eccentrics nor the heel of the type bar cooperate with the fingers until the type bar has almost completed its movement towards the platen, the guiding and supporting devices do not offer any resistance to the initial printing movement of the type bar and at the printing moment when these devices come into play there is no perceptible resistance to touch owing to the momentum of the type bar.

It will be seen that the effective surfaces of the fingers 12 which cooperate with the sides of the type bar are in planes parallel to the type bar, whereas the contact faces of the eccentric 13 cooperate with the ends of the fingers in a line which is at right angles to said planes and at right angles to the plane of movement of the type bar and parallel to the pivotal axis thereof. It will be understood, therefore, that if there is any lost motion in the pivotal bearings because of wear on the parts or for any other reason, such lost motion will be automatically taken up at the last portion of the printing stroke. Furthermore, there will not be as much wear between the fingers 12 and the parts which cooperate therewith as there is at the pivotal bearings, because the fingers and the parts which cooperate therewith are only brought into slight and momentary contact.

As hereinbefore pointed out, the inner sides of the fingers cooperate only with the sides of the type bar to prevent lateral shake of the type bar in its bearing, whereas the eccentrics 13 cooperate only with the ends of the fingers to prevent end shake of the type bar so that independent means are provided for preventing the shake of the type bar in two directions at right angles to each other. It will also be understood that the fingers 12 are preferably constructed so that they may be bent slightly to render them adjustable in order that the contact faces thereon may be

properly regulated to compensate for any looseness or shake at the bearing, whether the same be due to wear or occur in manufacture. In other words, the fingers may be bent towards or away from each other to properly co-act with the sides of the type bar or they may be bent so as to carry the ends of the fingers nearer to or further from the eccentrics 13, thus taking care of wear whether it occur at the tops or bottoms of the pivot bearings.

The heel of each type bar is recessed as indicated at 14 for the reception of one end of a link 15 pivotally connected to the type bar at 16 and connected at its other end to suitable devices for actuating the type bar.

From a broad aspect of my invention it is not necessary that the member 12 be carried by or made part of the hanger.

The fingers 12 being connected may be regarded as one part or they may be regarded as two parts. The two eccentrics 13 of each type bar being preferably formed as a part of the type bar and its trunnion-like pivotal projections may likewise be regarded as one part or they may be regarded as two eccentrics separated from each other by the type bar.

It will be understood of course that when the eccentrics cooperate with the ends of the fingers or abutments to support and properly position the type bar, there is no binding or wedging effect sufficient to cause the type bar to stick and fail to rebound from the platen, and likewise the inner sides of the fingers 12, when they cooperate with the sides of the type bar, do so without causing undue friction and liability of the type bar to stick as aforesaid.

In a front strike machine, the most troublesome type bars are those situated near the ends of the segment where the wear is greatest and takes place at more points than in the center of the system of type bars. If there is lateral shake in a side bar due to wear of the pivots or to wear of the bearings, gravity of the type bar tends to keep it nearer one arm of the hanger than the other, in the ordinary construction, but by my improvement one of the arms or fingers 12 will properly position the type bar laterally when the heel of the type bar swings between the fingers 12 just before the completion of the printing stroke. In other words, at this time the type bar is forced laterally by the lowermost finger and the extent to which it is moved is limited by the uppermost finger, the two fingers forming together a centering guide for the type bar. Again, where there is side shake to the type bar, as just above explained, the type bar ordinarily is apt to print variously above or below the line, according to the character of the blow upon the key, but by my invention this objection is practically cured regardless

of the force of the blow on the key, because any rise or fall of such side bar from the true central position is corrected by the guiding fingers 12 just before the type prints and

5 when the heel of the type bar enters between the tapering jaws or sides of the fingers. As heretofore explained, the endwise shake of the type bar is taken care of more particularly by the eccentrics and the ends of the
10 fingers when wear occurs on the upper or lower sides of the pivots or of the pivot seats or bearings, although, of course, the eccentrics and the ends of the fingers also co-act to prevent side shake of the bar, when such wear
15 takes place.

It will be seen that the eccentrics 13 are arranged on the sides of the type bar adjacent to the pivotal portions thereof; that these contacts coöperate with the fingers or alining
20 jaws 12 at the final portion of the printing stroke to lift the type bar in the direction of its length and to mechanically adjust the same both laterally and longitudinally; that said jaws 12 project towards the pivot of the
25 type bar and that portion of the inner walls of said jaws are tapering or inclined while other portions of said walls are parallel with each other and parallel with the hanger arms and coöperate with the body of the type bar
30 forward of its pivot.

While I have described one means for carrying out my invention, it will be understood that various changes may be made without departing from my invention.

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

1. In a typewriting machine, the combination of a pivoted type bar, a fixed abutment terminating close to the pivot of the type
40 bar, and a contact on the type bar at the pivotal portion thereof which coöperates with said abutment along a line parallel with the pivotal axis of the type bar at the last portion of the printing stroke.

45 2. In a typewriting machine, the combination of a type bar, an abutment, and an eccentric on the type bar, said eccentric being normally out of contact with said abutment but adapted to be brought into coöperation
50 therewith at the last portion of the printing stroke.

3. In a typewriting machine, the combination of a pivoted type bar, an abutment fixed against swinging movement, and an eccentric
55 on the type bar which contacts with said abutment in a line parallel with the pivotal axis of the type bar and on opposite sides of the type bar at the last portion of the printing stroke.

60 4. In a typewriting machine, the combination of a type bar, a hanger, and an eccentric on the type bar which is brought into contact with a part of the hanger when the type bar is about to print.

65 5. In a typewriting machine, the combina-

tion of a type bar, a hanger, and eccentrics on opposite sides of the type bar, which eccentrics are brought into contact with the hanger when the type bar is about to print.

6. In a typewriting machine, the combination of a type bar, a hanger, an eccentric on the type bar, and an abutment on the hanger, the periphery of the eccentric being brought into contact with said abutment at the last
70 portion of the printing stroke.

7. In a typewriting machine, the combination of a type bar, a hanger, an eccentric on each side of the type bar, and abutments on the hanger, the periphery of each eccentric being brought into contact with its associated
75 abutment at the last portion of the printing stroke.

8. In a typewriting machine, the combination of a hanger, a type bar provided with a pivot formed of trunnion-like projections on the type bar, an eccentric carried by the said
80 pivot, and an abutment on the hanger with which said eccentric is brought into coöperation at the last portion of the printing stroke.

9. In a typewriting machine, the combination of a hanger, a type bar provided with a pivot formed of trunnion-like projections on the type bar, eccentrics carried by said pivot on opposite sides of the type bar, and abutments on the hanger with which said eccen-
85 trics are brought into coöperation at the last portion of the printing stroke, the contact between the eccentrics and said abutments being in a line parallel to the pivotal axis of the type bar.

10. In a typewriting machine, the combination of a type bar, a hanger, abutments on the hanger on opposite sides of the type bar, and abutments carried by the type bar on opposite sides thereof and which are brought
90 into coöperative relation with the abutments on the hanger at the last portion of the printing stroke.

11. In a typewriting machine, the combination of a hanger, and a type bar pivoted thereto, the hanger being bifurcated to receive the type bar and having fingers which project inwardly from the pivot receiving arms thereof and bear against the sides of the type bar to guide the same in its movement
95 to the printing position.

12. In a typewriting machine, the combination of a hanger, a type bar pivoted thereto and having contact devices, said hanger being bifurcated to receive the type bar and having fingers which project inwardly from the pivot receiving arms thereof and which are provided with two sets of contact faces, one set of said faces being adapted to bear against the sides of the type bar in its movement to the printing position, and the other set of contact faces on the fingers being adapted to coöperate with the contact devices on the type bar at the last portion of the printing stroke.
100 105 110 115 120 125 130

13. In a typewriting machine, the combination of a hanger, a type bar pivoted thereto, one of the members being bifurcated to receive the other, the bifurcated member having fingers which project inwardly from the pivot receiving arms thereof and bear against the sides of the other member, and eccentrics on one of said members which come into contact with said fingers at the last portion of the printing stroke.
14. In a typewriting machine, the combination of a bifurcated hanger, a type bar pivoted between the arms of said hanger, and fingers which project inwardly from said arms and bear against the sides of the type bar.
15. In a typewriting machine, the combination of a bifurcated hanger, a type bar pivoted between the arms of said hanger, fingers which project inwardly from said arms and bear at their sides against the sides of the type bar, and contacts on the type bar which cooperate with the ends of said fingers at the last portion of the printing stroke of the type bar.
16. In a typewriting machine, the combination of a type bar, a hanger having an inwardly extending projection against part of which the heel of the type bar bears, and a contact on the type bar that is brought into cooperation with another part of said projection at the last portion of the printing stroke.
17. In a typewriting machine, the combination of a type bar, a hanger, inwardly projecting fingers on said hanger, each of which fingers at one point cooperates with a side of the type bar, and contact devices on opposite sides of the type bar, said contact devices cooperating with said fingers at other points thereof and at the last portion of the printing stroke of the type bar.
18. In a typewriting machine, the combination of a type bar, a hanger having inwardly projecting fingers which bear against the type bar on opposite sides thereof, and a pivot formed of trunnion-like projections each provided with an eccentric which is brought into cooperation with its associated finger on the hanger at the last portion of the printing stroke of the type bar.
19. In a typewriting machine, the combination of a pivoted type bar, a contact thereon, and an abutment for said contact adjustable towards and from said contact.
20. In a typewriting machine, the combination of a pivoted type bar, an eccentric thereon, and an abutment therefor adjustable towards and from said eccentric.
21. In a typewriting machine, the combination of a pivoted type bar, and means for automatically taking up side shake and means for automatically taking up end shake to the type bar in its pivotal bearings at the last portion of the printing stroke.
22. In a typewriting machine, the combination of a pivoted type bar, and independent means automatically brought into action at the last portion of the printing stroke to prevent lost motion of the type bar in its bearings in two directions at right angles to each other.
23. In a typewriting machine, the combination of a pivoted type bar, and independent means automatically brought into action at the last portion of the printing stroke to prevent lost motion of the type bar in its bearings in two directions at right angles to each other, part of said means being capable of adjustment.
24. In a typewriting machine, the combination of a pivoted type bar, and a hanger provided with tapering walls directed towards the pivot of the type bar and between which a part of the type bar forward of its pivot swings and is guided during the final portion of the printing stroke.
25. In a typewriting machine, the combination of a pivoted type bar, and a hanger provided with a pair of guiding fingers adjacent to and projecting towards the pivotal center of the type bar and cooperative with the type bar at the final portion of the printing stroke.
26. In a typewriting machine, the combination of a pivoted type bar, a U-shaped hanger in which the ends of the pivot of the type bar are mounted, and a pair of devices having guiding walls or surfaces arranged substantially parallel with the arms of the hanger and cooperative with a portion of the type bar during the final portion of the printing stroke.
27. In a typewriting machine, the combination of a type bar, a U-shaped hanger therefor, a pivot fixed to said type bar and mounted at its ends in bearings in said hanger, and a pair of guiding fingers on said hanger projecting towards the axis of said pivot and having guiding walls or surfaces substantially parallel with the arms of the hanger and the sides of the type bar.
28. In a typewriting machine, the combination of a pivoted type bar having contact devices on the sides thereof adjacent the pivotal portion of the type bar, a type bar hanger, and means thereon for causing a transverse movement of the pivot of the type bar and an endwise movement of the latter during the final portion of the printing stroke.
29. In a front strike typewriting machine, the combination of a pivoted type bar and hanger arranged at the side of a segmental support, said hanger being provided with a pair of alining jaws and said type bar being provided with a pair of contact devices whereby during the final portion of the printing stroke the type bar is mechanically adjusted both laterally and longitudinally.
30. In a typewriting machine, the combination of a pivoted type bar, and a hanger,

said hanger being provided with a pair of
alining jaws and said type bar being pro-
vided with a pair of contact devices, the con-
struction and arrangement of the parts being
5 such that the sides of the type bar and said
contact devices are brought into coöperation
with said jaws at the last portion of the print-
ing stroke and the type bar is mechanically
adjusted both laterally and longitudinally.

Signed at the borough of Manhattan, city 10
of New York, in the county of New York,
and State of New York, this 19th day of
February A. D. 1907.

JOHN B. HENNESSY.

Witnesses:

E. M. WELLS.

M. F. HANNWEBER.