R. SEIDELINGER.

TYPE WRITING MACHINE.

APPLICATION FILED SEPT. 18, 1909.

1,016,297. Patented Feb. 6, 1912.

FIG. 1.

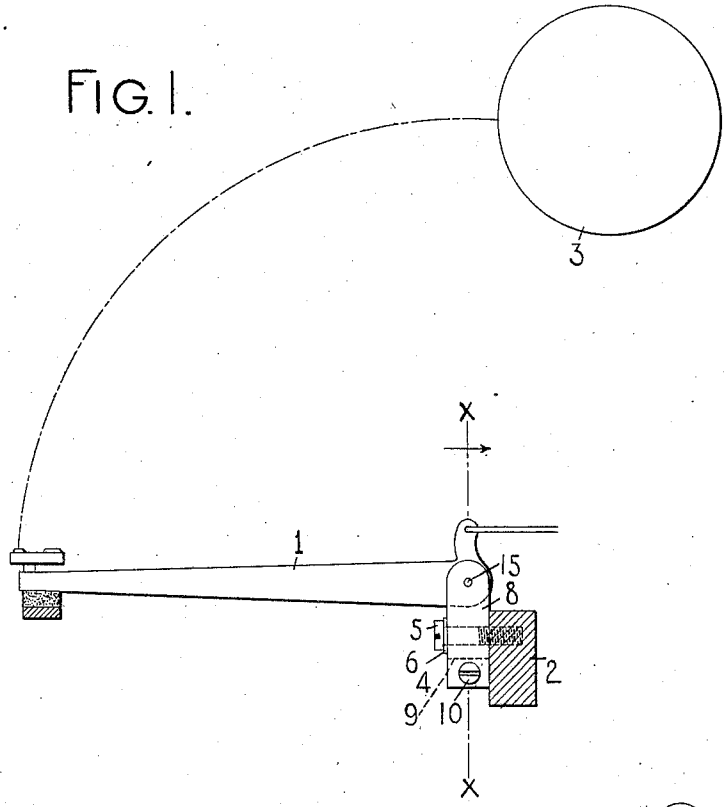


FIG. 2.

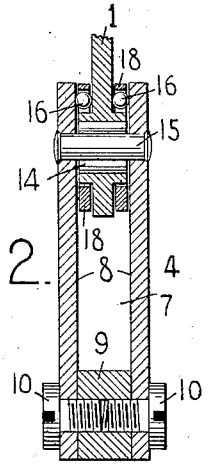


FIG. 3.

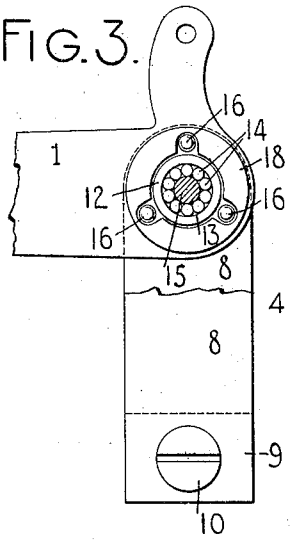


FIG. 4.

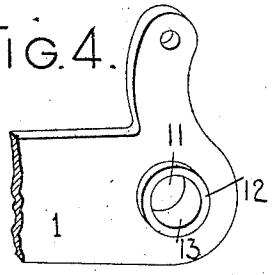
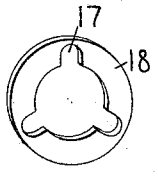


FIG. 5.



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TYPE-WRITING MACHINE.

1,016,297. Specification of Letters Patent. Patented Feb. 6, 1912.

Application filed September 18, 1909. Serial No. 518,429.

To all whom it may concern:

Be it known that I, ROBIE SEIDELINGER, citizen of the United States, and resident of Wilmington, in the county of Newcastle and State of Delaware, 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 bearings for type bars and the object of said invention generally stated is to provide a simple and efficient anti-friction roller construction to effectively support and guide the type bars in their movements.

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 wherein like reference-characters indicate corresponding parts in the various views, Figure 1 is a fragmentary side view showing a type bar and hanger embodying my invention, together with some of the associated parts. Fig. 2 is an enlarged detail sectional view of a type bar and hanger, 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 a fragmentary detail side view of the same with parts broken away and parts in section. Fig. 4 is a fragmentary detail perspective view of a type bar constructed in accordance with my invention. Fig. 5 is a detail perspective view of one of the spacing rings or plates.

The type bars 1 are segmentally arranged and mounted upon a type bar segment 2 to strike upwardly and rearwardly against the front face of the platen 3 diagrammatically shown in Fig. 1. The type bars are each mounted on a hanger designated as a whole by the reference numeral 4, each of the hangers being secured to the segment by a headed screw 5 which bears against a washer 6 and passes freely through an opening 7 between the arms of the hanger and takes at its threaded end in the tapped opening in the segment 2, the hangers being supported upon the front face of the segment as shown in Fig. 1. The hangers 4 are bifurcated hangers each comprising two separate side plates or hanger arms 8 secured to an intermediate spacing block 9 by screws 10; the type bar 1 being received between each set of hanger arms. The heel of each type bar is provided with an eye 11 and with circular flanges 12 which extend from the type bar on opposite sides thereof toward the hanger arms and which may be said to constitute a portion of the eye of the hanger. These flanges are preferably formed integral with the type bar and have an internal bearing seat 13 which coöperates with a series of circularly arranged cylindrical bearing rollers 14 which rollers surround and bear upon a headed pivot or supporting pin 15 that extends between the hanger arms and is firmly seated in openings therein. The length of the bearing rollers is less than the distance between the inner bearing faces or walls of the hanger arms and corresponds substantially to the distance between the outer edges of the flanges 12 of the type bar as shown in Fig. 2. The bearing rollers thus merely support the type bar in its pivotal movement and do not take the lateral thrust of the bar. Outside of the flanges 12 and the circularly arranged bearing rollers 14 and concentric therewith are two sets or series of circularly arranged anti-friction balls 16 arranged on opposite sides of the type bar. The number of balls 16 in each set may be varied, three being shown in the present instance. The balls 16 are preferably arranged in openings 17 provided in ball separators, spacers, or spacing rings 18 on opposite sides of the type bar. The anti-friction balls 16 are surrounded by the spacing rings and the spacing rings are of such thickness as to substantially fill the spaces between the inner side walls of the hanger and the body of the type bar, as shown in Fig. 2, to practically exclude dust or grit from the bearings of the type bars. In practice I prefer that there should be a bare clearance between the side walls of the spacing rings and the side walls of the type bar and hanger arms. Each set of anti-friction balls 16 receives a bearing on one side against a side of the type bar and at the other side against an inner bearing face of a hanger arm 8. The lateral thrust of each type bar is thus taken wholly by the anti-friction balls 16 to effectively guide the

type bar in its swinging movement, whereas the anti-friction rollers support the type bar in its pivotal movement.

By this construction an efficient and substantial bearing is provided to accurately guide the type bar in its printing movement against lateral deflection, and one in which there will be no appreciable sign of wear after long use and in which dust or grit is excluded from the bearing.

Any lost motion between the anti-friction balls and the bearing surfaces which co-act therewith may be taken up by slightly heading or upsetting the ends of the pin 15 which practically constitutes a rivet that unites the hanger arms along the line of the axis of revolution of the type bar.

Various changes may be made without departing from the spirit and scope of my invention.

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

1. In a typewriting machine, the combination of a type bar, a hanger therefor having parallel arms, a support to which said hanger is secured, a series of substantially cylindrical bearing rollers between said hanger arms, a suitable support on the hanger for said cylindrical rollers so that the rollers support the type bar in its pivotal movement, and circularly arranged anti-friction balls interposed between the type bar and hanger arms, which balls receive the lateral thrust of the type bar, the rollers being arranged in a circular series within and concentric with the said series of balls.

2. In a typewriting machine, the combination of a type bar, a hanger therefor having parallel arms, a support to which said hanger is secured, a series of substantially cylindrical bearing rollers between said hanger arms, a suitable support on the hanger for said cylindrical rollers, so that the rollers support the type bar in its pivotal movement, and anti-friction balls interposed between said type bar and hanger arms and situated on opposite sides of the type bar, said anti-friction balls bearing against the hanger arms and receiving the lateral thrust of the type bar.

3. In a typewriting machine, the combination of a hanger, a type bar, one of said parts being bifurcated to receive the other, a pivot pin which unites the type bar and hanger, a series of cylindrical bearing rollers which bear against said pin and on which the type bar receives its support in its pivotal movement, and anti-friction rollers which are interposed between and bear against the type bar and hanger and which only receive the lateral thrust of the bar.

4. In a typewriting machine, the combination of a type bar, a hanger, one of said type bar and hanger members having parallel arms, a pivot pin carried by said parallel arms, a series of cylindrical bearing rollers surrounding said pin and interposed between it and the other of said members, and anti-friction balls which are interposed between and bear against the type bar and hanger and take the lateral thrust of the type bar.

5. In a typewriting machine, the combination of a type bar, a bifurcated hanger in which the type bar is received, cylindrical bearing rollers between the type bar and hanger and on which the type bar is wholly supported for pivotal movement, and anti-friction balls which are interposed between and bear against the arms of the hanger and the type bar and receive only the lateral thrust of the type bar.

6. In a typewriting machine, the combination of a type bar, a bifurcated hanger in which the type bar is received, a pin that extends between the arms of the hanger, a circular series of cylindrical bearing rollers which bear on said pin and form a support for the type bar in its pivotal movement, and anti-friction balls which are interposed between and bear against the type bar and hanger, said anti-friction balls taking the lateral thrust of the type bar.

7. In a typewriting machine, the combination of a type bar having an eye, a hanger, a circular series of cylindrical bearing rollers contained within said eye and forming a bearing for the type bar in its pivotal movement, and anti-friction balls outside of the eye and coöperating with said type bar and hanger to take the lateral thrust of the bar.

8. In a typewriting machine, the combination of a type bar having an eye, a bifurcated hanger which receives the type bar between the arms of the hanger, a circular series of cylindrical bearing rollers contained within said eye and forming a bearing for the type bar in its pivotal movement, and anti-friction balls outside of the eye and coöperating with said type bar and with the arms of the hanger to take the lateral thrust of the bar.

9. In a typewriting machine, the combination of a hanger, a type bar having circular flanges projecting from opposite sides thereof, a series of circularly arranged cylindrical bearing rollers contained within said flanges and supporting the type bar in its pivotal movement, and anti-friction balls arranged outside of said flanges and coöperating with the type bar and hanger to take the lateral thrust of the type bar.

10. In a typewriting machine, the combination of a hanger, a type bar having an eye and formed with circular flanges projecting from opposite sides thereof, a series

of circularly arranged cylindrical bearing rollers contained within said eye and supporting the type bar in its pivotal movement, and two sets of anti-friction balls arranged outside of said flanges and on opposite sides of the type bar and coöperating with the type bar and hanger to take the lateral thrust of the type bar.

11. In a typewriting machine, the combination of a bifurcated hanger, a type bar received between the arms of said hanger, said type bar having circular flanges which project from opposite sides of the type bar toward the hanger arms, a circular series of cylindrical bearing rollers contained within said flanges and on which the type bar is supported in its pivotal movement, and two sets of anti-friction balls outside of said flanges and on opposite sides of the type bar and interposed between the inner walls of the hanger arms and the sides of the type bar and taking the lateral thrust of the type bar.

12. In a typewriting machine, the combination of a bifurcated hanger, a type bar received between the arms of said hanger, said type bar having an eye and formed with circular flanges which project from opposite sides of the type bar toward the hanger arms, a pin which extends between the hanger arms and through the eye of the type bar, a circular series of cylindrical bearing rollers contained within said eye and on which the type bar is supported in its pivotal movement, and two sets of anti-friction balls outside of said flanges and on opposite sides of the type bar and interposed between the inner walls of the hanger arms and the sides of the type bar and taking the lateral thrust of the type bar.

13. In a typewriting machine, the combination of a bifurcated hanger, a type bar received between the arms of said hanger, said type bar having an eye, a circular series of cylindrical bearing rollers contained within said eye, and two sets of anti-friction balls outside of said eye, said balls being on opposite sides of the type bar and interposed between the inner faces of the hanger arms and the sides of the type bar and taking the lateral thrust of the bar.

14. In a typewriting machine, the combination of a bifurcated hanger, a type bar received between the arms of said hanger, said type bar having an eye, a pin that passes between the arms of the hanger and through said eye, a circular series of cylindrical bearing rollers contained within said eye and bearing on said pin, and two sets of anti-friction balls outside of said eye, said balls being on opposite sides of the type bar and interposed between the inner faces of the hanger arms and the sides of the type bar and taking the lateral thrust of the bar.

15. In a typewriting machine, the combination of a type bar, a hanger therefor, and a roller bearing joint for the type bar including anti-friction rollers, and spacers coöperative with said rollers and surrounding the same and substantially filling the space between the type bar and hanger.

16. In a typewriting machine, the combination of a type bar, a hanger therefor, a series of substantially cylindrical bearing rollers which support the type bar in its pivotal movement, circularly arranged anti-friction balls interposed between the type bar and hanger, which balls receive the lateral thrust of the type bar, the rollers being arranged in a circular series within and concentric with the said series of balls, and spacers coöperative with said balls and surrounding the same and substantially filling the space between the type bar and hanger.

17. In a typewriting machine, the combination of a type bar, a hanger therefor, a series of substantially cylindrical bearing rollers which support the type bar in its pivotal movement, anti-friction balls interposed between said type bar and hanger and situated on opposite sides of the type bar, said anti-friction balls receiving the lateral thrust of the type bar, and two independent ball separators which coöperate with and surround said balls and which are situated on opposite sides of the type bar and substantially fill the spaces between the type bar and hanger.

18. In a typewriting machine, the combination of a type bar, a hanger, a pivot pin carried by one of said members, a series of cylindrical bearing rollers surrounding said pin and interposed between it and the other of said members, anti-friction balls interposed between the type bar and hanger and taking the lateral thrust of the type bar, and spacing rings which surround the balls and which are concentric with said pin and substantially fill the spaces between the type bar and hanger.

19. In a typewriting machine, the combination of a type bar having an eye, a hanger, a circular series of cylindrical bearing rollers contained within said eye and forming a bearing for the type bar in its pivotal movement, anti-friction balls outside of the eye and coöperating with said type bar and hanger to take the lateral thrust of the bar, and spacing rings which surround said balls and are coöperative therewith and substantially fill the spaces between the type bar and hanger.

20. In a typewriting machine, the combination of a hanger, a type bar having circular flanges projecting from opposite sides thereof, a series of circularly arranged cylindrical bearing rollers contained within said flanges and supporting the type bar in its pivotal movement, anti-friction balls ar-

ranged outside of said flanges and coöperating with the type bar and hanger to take the lateral thrust of the type bar, and two independent ball separators which coöperate with and surround said balls and which are situated on opposite sides of the type bar and substantially fill the spaces between the type bar and hanger.

21. In a typewriting machine, the combination of a bifurcated hanger, a type bar received between the arms of said hanger, said type bar having an eye, a pin that passes between the arms of the hanger and through said eye, a circular series of cylindrical bearing rollers contained within said eye and bearing on said pin, two sets of antifriction balls outside of said eye, said balls being on opposite sides of the type bar and interposed between the inner faces of the hanger arms and the sides of the type bar and taking the lateral thrust of the bar, and two independent ball separators which cooperate with and surround said balls and which are situated on opposite sides of the type bar and substantially fill the spaces between the type bar and hanger.

Signed at Wilmington in the county of Newcastle and State of Delaware this sixteenth day of September A. D. 1909.

ROBIE SEIDELINGER.

Witnesses:
FRANCIS H. HOFFECKER,
THOMAS J. BOWEN, Jr.