Jan. 6, 1925.

1,522,011

G. G. GOING

TYPEWRITING MACHINE

Filed April 9, 1921

2 Sheets-Sheet 1

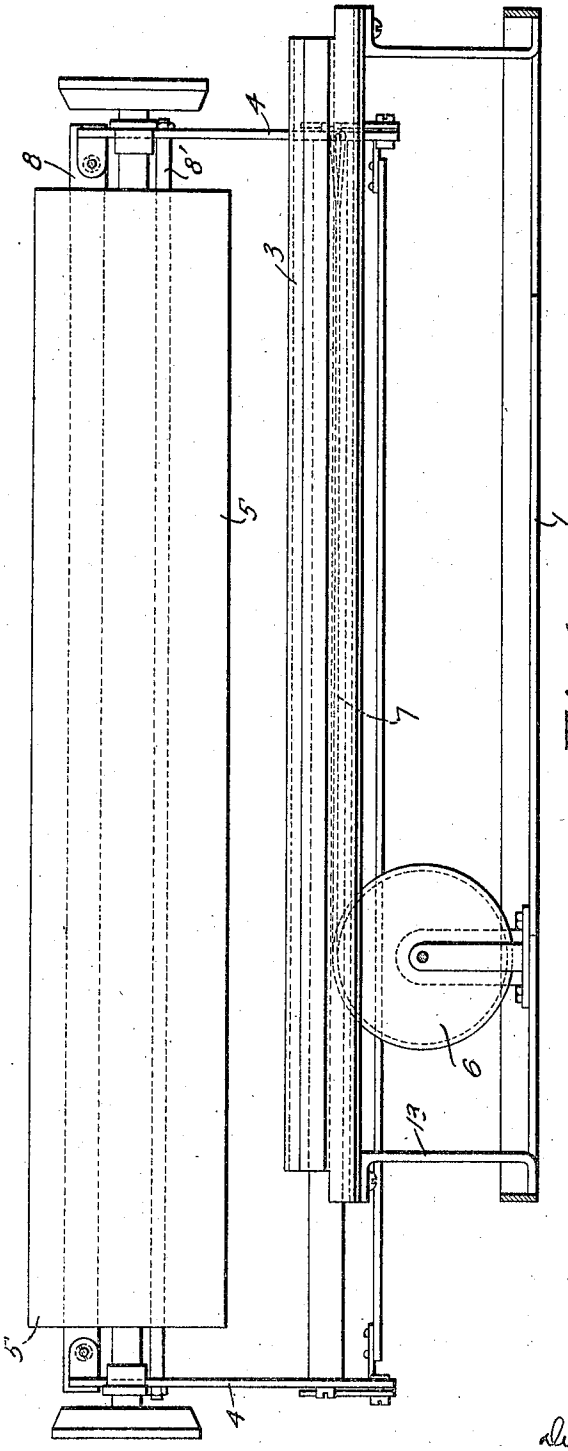

Fig. 1

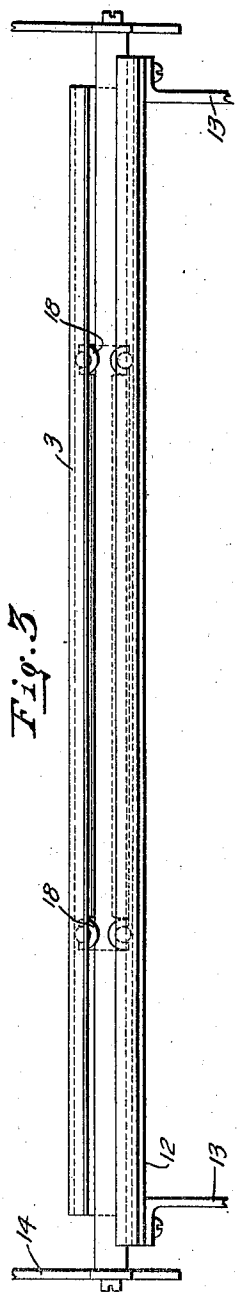

Fig. 3

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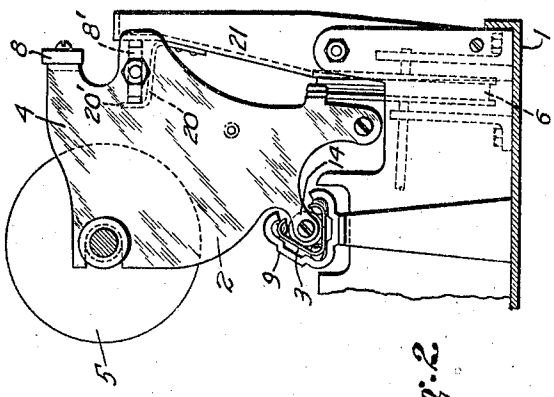

Fig. 2

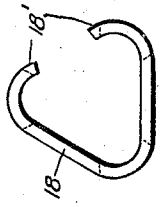

Fig. 6

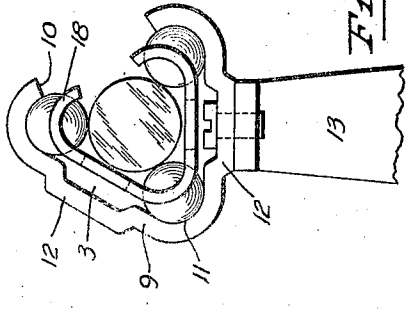

Fig. 4

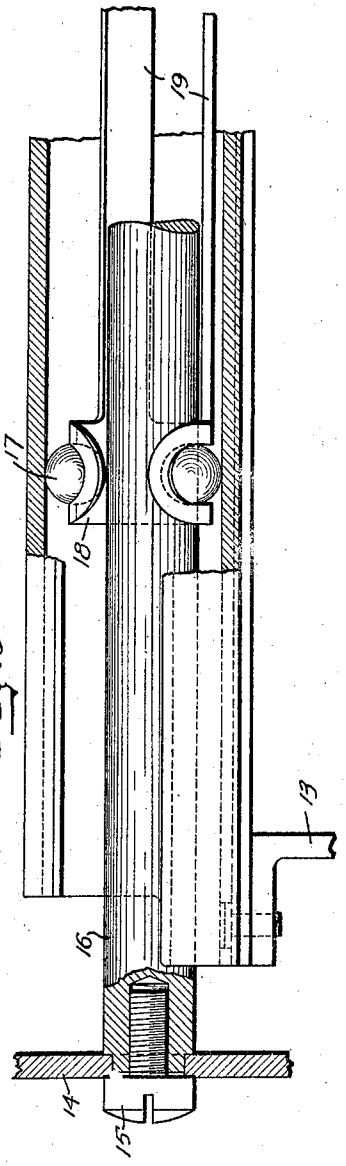

Fig. 5

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Patented Jan. 6, 1925. 1,522,011

UNITED STATES PATENT OFFICE.

GEORGE GOULD GOING, OF MIDDLETOWN, CONNECTICUT, ASSIGNOR, BY MESNE ASSIGNMENTS, TO REMINGTON-NOISELESS TYPEWRITER CORPORATION, A CORPORATION OF NEW YORK.

TYPEWRITING MACHINE.

Application filed April 9, 1921. Serial No. 459,921.

To all whom it may concern:

Be it known that I, GEORGE GOULD GOING, a citizen of the United States, residing at Middletown, in the county of Middlesex and State of Connecticut, have invented certain new and useful Improvements in Typewriting Machines, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in bearings for typewriting machines, and in some of its details more particularly to bearings for carriage mechanisms of such machines.

It is an object of the invention to provide a bearing of the class mentioned which is simple in construction, inexpensive in manufacturing costs, not easily subjected to damage, and efficient and reliable in use.

A further object is to provide an improved bearing construction of the class mentioned which will support the carriage of a typewriting machine in accurate alignment at all times and in all positions thereof and which is practically frictionless and noiseless in operation.

Other objects will be in part pointed out in connection with the following detailed description and in part obvious in connection therewith.

In the accompanying drawings wherein an illustrative but preferred embodiment of the invention is illustrated,

Figure 1 is an elevational view showing the platen carriage of a typewriting machine mounted in accordance with this invention;

Fig. 2 is an end elevation of the same;

Fig. 3 is a fragmentary detail view of the bearing;

Fig. 4 is an enlarged end elevation of the same;

Fig. 5 is an enlarged fragmentary view of the bearing, parts being broken away more clearly to disclose the structure; and

Fig. 6 is an end view of the ball retaining cage.

As shown in the drawing the invention is applied to a typewriting machine having a base plate 1 and a platen carriage 2 supported for horizontal movement transversely of the base by means of a bearing 3 constructed in accordance with the invention. It is to be understood, however, that the improved bearing may be employed in other relations, such for example as a supporting means for permitting vertical movement of a platen carriage or as a support for the type carriage or segment.

The platen carriage includes side plates 4 carrying a platen roll 5 and is adapted to be moved longitudinally transversely of the base of the writing machine by any approved feeding mechanism (not shown) being resiliently urged in this movement by a spring pressed drum 6 having a flexible member 7 wound thereon and connected to the carriage. The plates 4 are secured in spaced relationship by suitable frame members, such as shown at 8 and 8′. The main supporting bearing 3 of the platen carriage comprises a tubelike supporting member or ball rail 9 preferably of pressed metal bent to have a cross-section approximating a closed geometrical figure but left slightly open at one place to provide an open or slotted side in the member, the form shown, being substantially triangular in cross-section and provided along one side thereof with a longitudinally extending opening 10. The ball rail is provided internally thereof substantially at the angles with longitudinally extending ball races or grooves 11, being preferably pressed into the metal. The ball rail is also provided with longitudinal stiffening ribs 12 pressed therein, one of these ribs being extended for attachment to a supporting standard 12 secured to the base of the machine.

Integral lugs or extensions 14 on the side plates 4 of the carriage extend into the opening 10 of the ball rail and attached to the same as by screws 15 is a ball rod 16 adapted to lie within the tubular ball rail in central position relatively to the ball races. This rod is preferably of hard steel and circular in cross-section being adapted to contact with bearing balls 17 co-operating with the ball races. If desired, however, the ball rod may be provided with longitudinal grooves providing ball races, aligning with the ball races in the ball rail. Groups of these bearing balls are preferably spaced at a plurality of points longitudinally of the bearing so as to support the carriage in accurate alignment at all times irrespective of its transverse position.

This spacing is accomplished by means of ball cages 18 spaced apart the desired distance and connected together by integral straps 19 and forming in effect a single unitary cage. This ball cage is constructed by stamping the same from a sheet of flat metal, the ball retaining portions at either end being provided with laterally extending arms 18′, the openings for accommodating the balls being punched in the desired spaced relationship. The blank for the cage is then formed into substantially triangular shape corresponding to the shape of the ball race as shown in Figs. 4 and 6.

It will be understood that the main carriage support 3 will be disposed in a vertical plane extending approximately through the center of gravity of the platen carriage and attached elements whereby the carriage is substantially balanced upon the bearing and practically the entire weight is carried thereby. However, in order to support the carriage from pivotal movement about the bearing 3 an angular guiding plate 20, shown in dotted lines in Fig. 2, is secured to a standard 21 and disposed so as to contact with the transverse member 8′ of the carriage, an upwardly extending flange 20′ contacting with the member 8′ so as to prevent pivotal movement in one direction. The carriage is prevented from rotating in the opposite direction by engagement of the frame member 8′ with the bracket 20 or with the standard 21.

It will thus be seen the carriage is supported in balanced position, the weight thereof being principally carried by the bearing 3 which is particularly designed to support the carriage in accurate alignment at all times. The bearing construction described is also practically frictionless and noiseless in operation and may be subjected to long periods of service without appreciable wear or deterioration.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

Having described my invention, what I claim as new and desire to secure by Letters Patent is—

1. A ball rail comprising sheet material bent to be substantially triangular in cross-section and having an opening extending along one side thereof and provided with internal ball races disposed substantially in the vertices thereof.

2. A ball rail comprising a sheet of pressed metal bent to be substantially triangular in cross-section and provided with an opening along one side thereof and ball races pressed in the inner surface of said rail and disposed substantially in the vertices thereof.

3. A support including, in combination, a ball rail of sheet material bent to have a longitudinal opening in one side thereof, ball races extending longitudinally internally thereof, a ball rod disposed within said ball rail, a supported member, lugs on said supported member extended through said opening and secured to said ball rod, bearing balls spaced longitudinally of said ball rail and a unitary cage for supporting said balls in spaced relationship comprising spaced ball retaining members and an integral strap connecting the same.

4. A support including, in combination, a ball rail of pressed metal substantially triangular in cross-section having an opening extending along one side thereof, ball races disposed substantially at the angles of said ball rail internally thereof, a ball rod disposed within said ball rail, a typewriter carriage provided with lugs extending into said opening and secured to said ball rod, bearing balls spaced longitudinally within said ball rail and contacting with said rail and rod, and means for supporting said balls in longitudinally spaced relationship.

In testimony whereof I affix my signature in the presence of two witnesses.

GEORGE GOULD GOING.

Witnesses:
A. W. AUSTIN,
N. M. SEIFERMAN.