

No. 816,118.

PATENTED MAR. 27, 1906.

L. NEY.  
TYPE WRITING MACHINE.  
APPLICATION FILED OCT. 30, 1903.

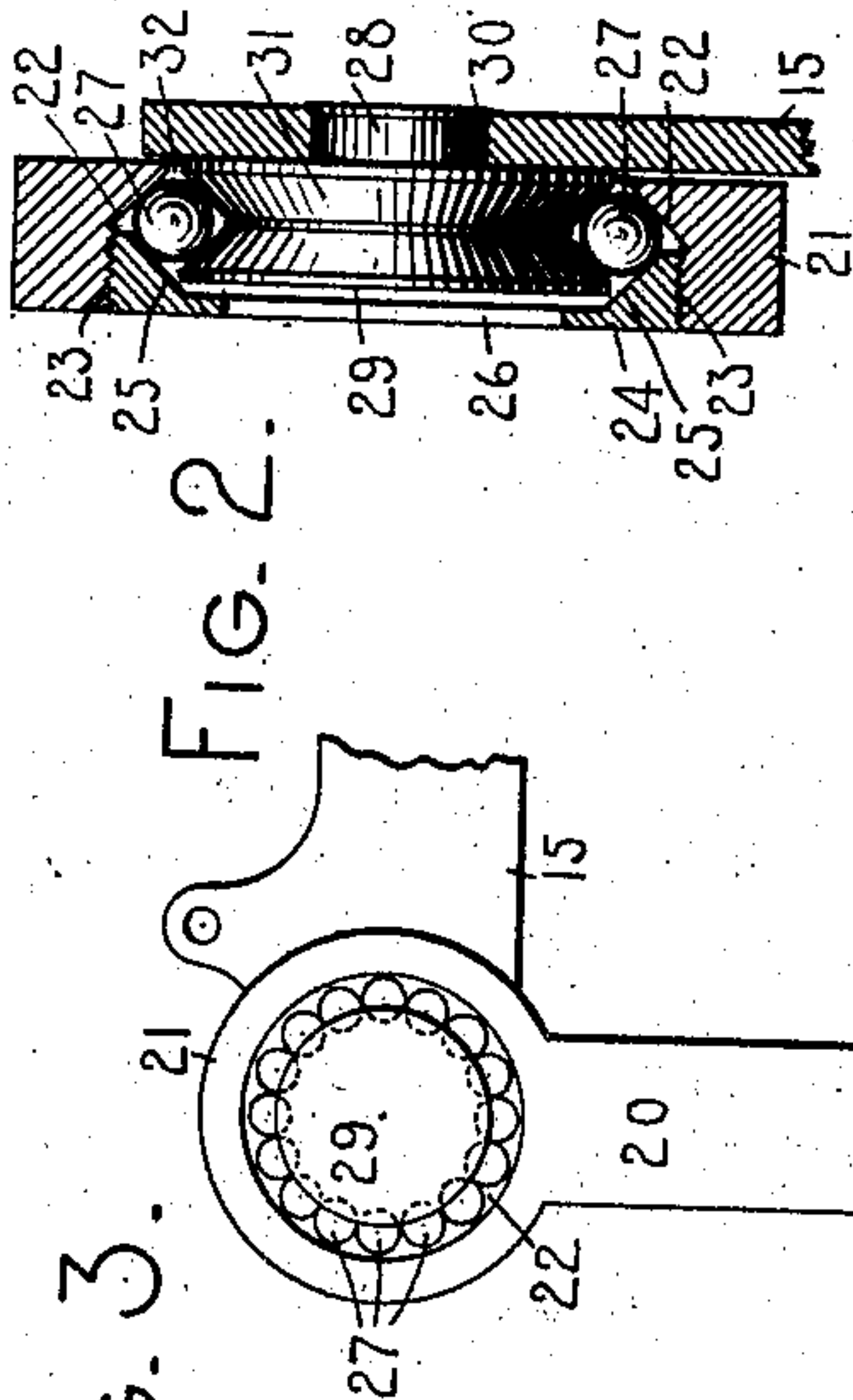
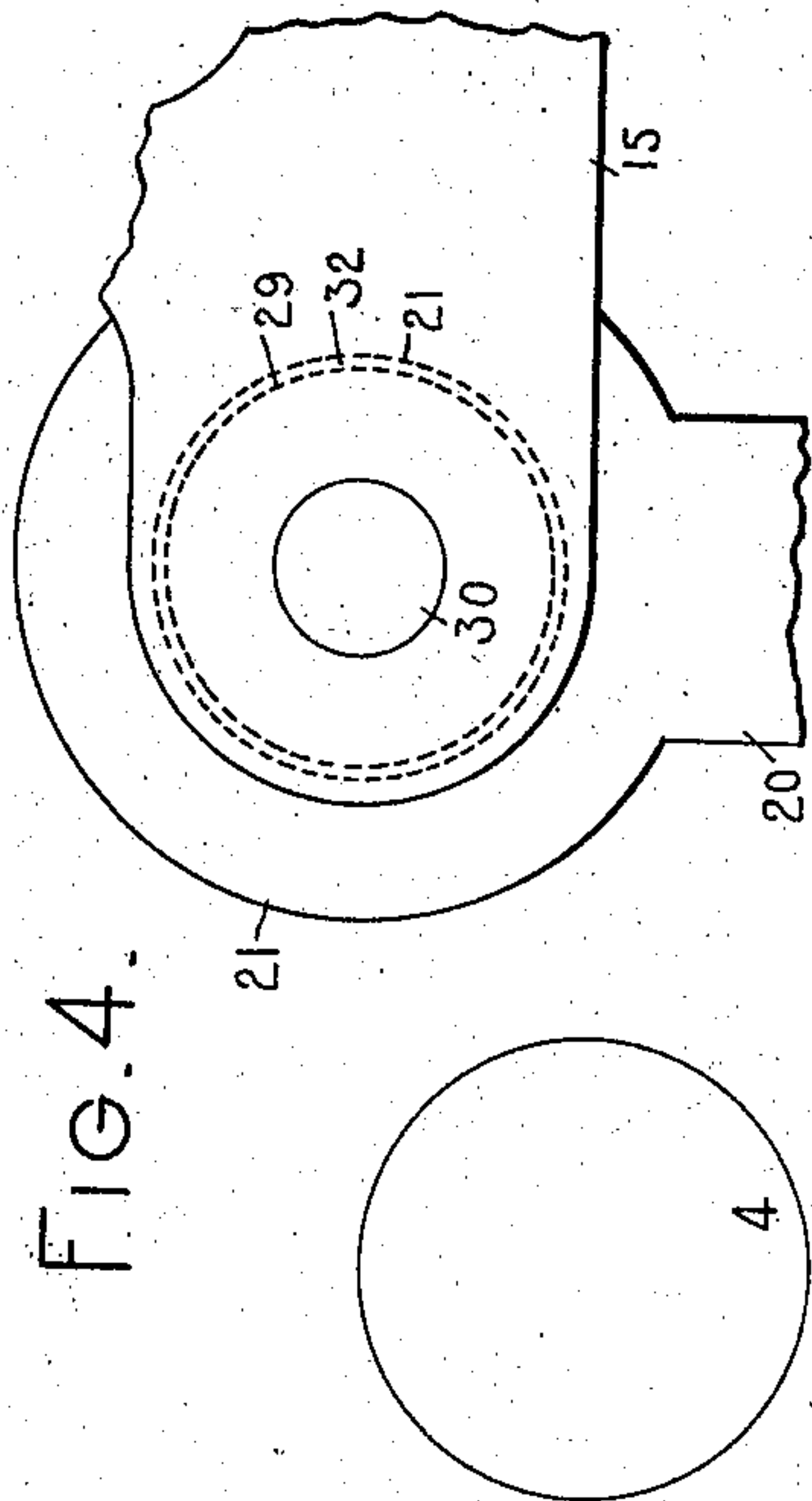


FIG. 2.

WITNESSES:

E. M. Wells.  
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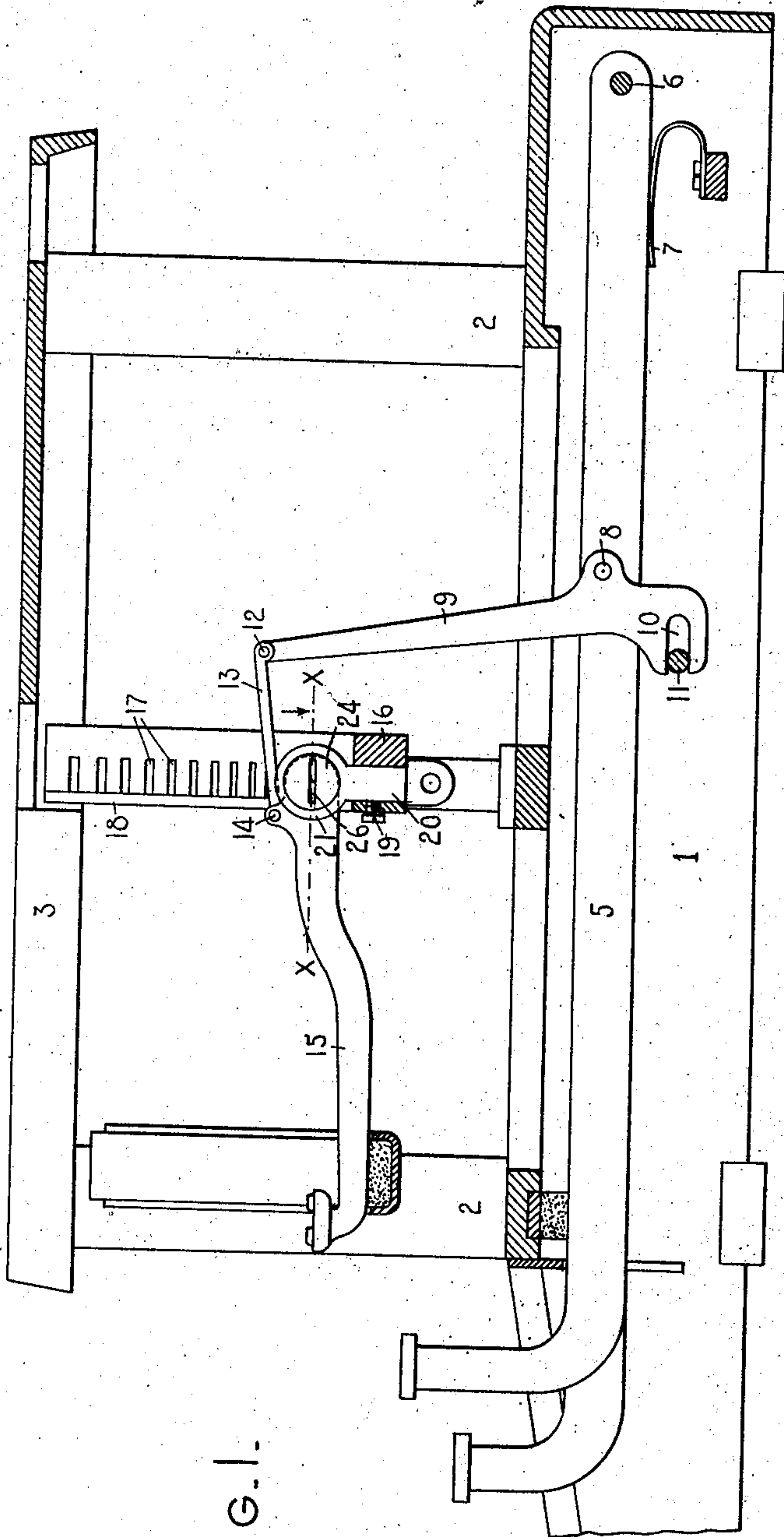


FIG. 1.

INVENTOR:

Louis Ney  
by James F. Bell  
HIS ATTORNEY



# UNITED STATES PATENT OFFICE.

LOUIS NEY, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR TO THE  
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## TYPE-WRITING MACHINE.

No. 816,118.

Specification of Letters Patent.

Patented March 27, 1906.

Application filed October 30, 1903. Serial No. 179,153.

*To all whom it may concern:*

Be it known that I, LOUIS NEY, a citizen of the United States, and a resident of Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to type-writing machines, and more particularly to type-bars and hangers therefor.

The object of my invention is to provide a simple and efficient type-bar and hanger construction wherein each type-bar is adapted to vibrate on ball-bearings from which dust is excluded and in which the construction occupies but little space laterally, whereby a large number of type-bars and hangers can be mounted in a comparatively small space without unduly crowding the parts or detracting from the strength or rigidity thereof.

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 designate like parts in the various views, Figure 1 is a vertical front to rear sectional view of sufficient number of parts of one form of type-writing machines to illustrate my invention in its application thereto. Fig. 2 is an enlarged detail fragmentary transverse 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 detail side view of a type-bar and hanger with the cover or bearing plate removed. Fig. 4 is a like view of a type-bar and hanger, on an enlarged scale and looking in the opposite direction.

The frame 1 of the machine is provided with corner-posts 2 and a top plate 3. A suitable carriage (not shown) travels from side to side of the machine on the top plate and carries a platen 4. (Diagrammatically illustrated in Fig. 1.) Key-levers 5 are pivoted in the base of the machine at 6 and provided with the usual restoring-springs 7. Each

key-lever is pivoted at 8 to a sublever 9, the lower end of which is slotted at 10 for cooperation with a fixed fulcrum-bar 11, that extends from side to side of the machine beneath the key-levers. The upper end of each key-lever is pivoted at 12 to a forwardly-extending link 13, pivoted at 14 to a type-bar 15. The various type-bars are segmentally arranged and are adapted to swing upwardly and rearwardly to strike the front face of the platen 4. A type-bar segment 16 has a series of segmental slots 17 therein, and a segmental cover-plate 18 is secured to the segment in front of the slots and constitute the front walls thereof. This cover-plate has a series of threaded openings therein, an opening being provided in front of each slot for the reception of a screw 19. The slots 17 are each adapted to receive the stem 20 of a type-bar hanger and which is secured in place by a screw 19. The hanger is provided with an eye 21, that has an inwardly-beveled ball-bearing face or surface 22 at one side thereof. The eye is likewise internally screw-threaded, as indicated at 23, for cooperation with the external screw-threads on the cover or bearing plate 24. This bearing-plate is provided with an inwardly-beveled ball-bearing surface 25 and with a groove or slot 26, which may extend into or entirely through the cover-plate and is adapted to receive a suitable tool, such as a screw-driver, by means of which the plate may be screwed into position and properly adjusted.

From an examination of Fig. 2 it will be observed that the oppositely-disposed beveled ball-bearing surfaces 22 and 25 form a substantially V-shaped raceway in the median plane of the hanger for the reception of antifriction balls or rollers 27.

Each type-bar 15 is apertured for the reception of a stem 28, which projects from a hub 29. The stem is projected through its opening in the type-bar and is riveted thereto, as indicated at 30, in order to securely unite the hub to the type-bar. The hub 29 is offset from the type-bar, as indicated in Fig. 2, and is provided in the periphery thereof with a V-shaped ball-bearing groove 31 for cooperation with the balls 27. It will be observed that the offset hub is adapted to be



received within the eye of the type-bar hanger and that when the balls are in place they prevent the withdrawal of the hub from the eye.

From an inspection of Figs. 2 and 4 it will be seen that the only space or entrance to the ball-bearing is the small space 32 between the periphery of the hub and the bearing 22 in the eye of the hanger and that the type-bar overlaps and covers this opening and prevents the admission of dust to the bearing at one side thereof. It will be understood that it is merely necessary to afford a bare clearance between the periphery of the hub and the bearing, so that the hub and ring will not be brought into contact, and that the space 32 may therefore be very small.

The bearing or cover plate 24 covers one end of the hub and excludes the admission of dust to the raceway or bearings at one side thereof, whereas the body portion of the type-bar covers the opening 32 at the other side of the raceway and prevents the admission of dust at that side, as above pointed out, so that dust is efficiently excluded. An adjustment of the cover or bearing plate 24 affords a relative adjustment between the ball-bearing faces 22 and 25 and parallel to the median plane of the series of balls 27, thereby compensating for any wear that may take place. Furthermore, the bearing-plate 24 is received wholly within the eye of the hanger and adds nothing to the thickness thereof, so that a comparatively thin and efficient type-bar and hanger construction is provided wherein dust is excluded from the bearings and antifriction-balls. The wide extent of bearing-surface afforded by the circular series of antifriction-balls prevents a lateral deflection of the type-bar during the printing movements thereof.

In assembling the parts the detached hub, antifriction-balls, and bearing-ring 24 are assembled in the manner shown in Fig. 2, and the stem 28 is then introduced into the opening in the type-bar, and the head of the stem is riveted to the bar to securely unite the hub and bar. The bearing-plate 24 is then screwed into position and adjusted. It will be observed that the removal of the plate 24 does not allow the balls to be displaced from their bearings.

An inspection of Fig. 2 will show that there is no contact whatever between the type-bar and its hub and the hanger notwithstanding the fact that the body of the bar overlaps and breaks joint with the opening 32, thereby preventing admission of dust to the bearing.

From certain aspects of my invention the hanger may be said to comprise a two-part eye, one part being formed by the opening or eye proper, 21, and the other by the bearing or cover plate 24.

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

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

1. In a type-bar and hanger construction, the combination of a type-bar having a hub connected thereto, a hanger having an eye adapted to receive said hub, a cover-plate that is secured to the eye and covers one end of the hub and prevents the admission of dust to the bearing; admission of dust at the other end of the hub being prevented by the type-bar, and antifriction-balls interposed between the hub and eye.

2. In a type-bar and hanger construction, the combination of a type-bar having a hub connected thereto, a hanger having an eye that is threaded and adapted to receive said hub, a cover-plate that is threaded for cooperation with the threaded portion of the eye and covers one end of the hub and prevents the admission of dust to the bearing; admission of dust at the other end of the hub being prevented by the type-bar, and antifriction-balls interposed between the hub and eye.

3. In a type-bar and hanger construction, the combination of a type-bar having an offset hub extending from one side thereof and which constitutes the sole means by which said type-bar is supported, a hanger having an eye that receives said hub, a removable plate that covers the hub at one end thereof and prevents the admission of dust to the bearings of the type-bar at one side thereof, whereas the type-bar covers the joint between the type-bar and hanger at the other side of the bearing and prevents the admission of dust thereto, and antifriction-balls between the type-bar and hub.

4. In a type-bar and hanger construction, the combination of a type-bar having an offset hub extending from one side thereof and the hub having a ball-receiving groove therein, a hanger having an eye that receives said hub, an adjustable ball-bearing plate that is secured to the hanger and covers the hub at one end thereof and prevents the admission of dust to the bearings of the type-bar at one side thereof, whereas the type-bar covers the joint between the type-bar and hanger at the other side of the bearing and prevents the admission of dust thereto, and antifriction-balls between the hub and eye and ball-bearing plate.

5. In a type-bar and hanger construction, the combination of a type-bar having an offset hub extending from one side thereof and which constitutes the sole means by which said type-bar is supported, the hub having a circumferential ball-groove therein, a hanger having an eye that is internally screw-threaded and receives said hub, an adjustable ball-bearing plate that is externally threaded and is adapted to be received within the eye and to cooperate with the threaded portion thereof and which covers one end of the hub and



prevents the admission of dust to the bearings of the type-bar at one side thereof, whereas the type-bar covers the joint between the type-bar and hanger at the other side of the bearing and prevents the admission of dust thereto, and antifriction-balls between the hub and eye and ball-bearing plate.

6. In a type-bar and hanger construction, the combination of a type-bar having a hub that is riveted thereto and which has a peripheral ball-bearing groove, a hanger having an eye adapted to receive said hub and provided with a ball-bearing, a removable ball-bearing cover-plate independent of the hub and supported by the hanger on the side thereof opposite the type-bar, and antifriction-balls cooperating with the hub and bearings.

7. In a type-bar and hanger construction, the combination of a type-bar having an offset hub provided with a ball-bearing and which constitutes the sole support for said type-bar, a hanger having an eye adapted to receive the hub and enabling the type-bar to swing on one side thereof and to cover the joint between the type-bar and hanger, an adjustable bearing-plate secured to the eye of the hanger on the side thereof opposite the type-bar, and antifriction-balls between said hub and bearings.

8. In a type-bar and hanger construction, the combination of a type-bar having an offset grooved hub riveted thereto, a hanger having a threaded eye adapted to receive the hub and enabling the type-bar to swing on one side thereof and to cover the joint between the type-bar and hanger, a threaded bearing-plate secured to the eye of the hanger on the side thereof opposite the type-bar, and antifriction-balls between the groove in the hub and the bearings of the eye.

9. In a type-bar and hanger construction, the combination of a type-bar having a hub arranged on one side thereof, said hub having a substantially V-shaped peripheral groove therein, a hanger having a two-part eye, each part having a ball-bearing, means for affording an adjustment of one of the bearings

within the other, and antifriction-balls between said V-shaped groove and the bearings of the eye.

10. In a type-bar and hanger construction, the combination of a type-bar having an offset hub with a substantially V-shaped peripheral groove therein, a hanger having an eye with a beveled ball-bearing therein, an adjustable bearing-plate that is connected to said eye and covers the bearings and has a ball-bearing surface beveled in an opposite direction to the ball-bearing surface in the eye, and antifriction-balls between the V-shaped peripheral groove in the hub and the beveled bearing-surfaces on the eye and plate.

11. In a type-bar and hanger construction, the combination of a type-bar having an offset hub riveted thereto, said hub being provided with a peripheral ball-groove, a hanger having an eye with a fixed ball-bearing at one side thereof and a threaded portion and a ball-bearing plate that has a threaded portion which cooperates with the threaded portion of the eye, and antifriction-balls between the hub and the bearings on the eye and plate.

12. In a type-bar and hanger construction, the combination of a hanger having an eye and a stem that is adapted to be received within a slot in a type-bar segment, an inwardly-beveled ball-bearing formed on one side of the eye, an internal thread in the eye, a plate having an external thread on the plate that cooperates with the internal thread in the eye, an inwardly-beveled ball-bearing formed on the plate, a type-bar, and an offset hub on the type-bar which is received in the eye, and antifriction-balls between said ball-bearings and hub.

Signed at Springfield, in the county of Hampden and State of Massachusetts, this 26th day of October, A. D. 1903.

LOUIS NEY.

Witnesses:

M. B. MASON,

GEO. A. DENNISON.