

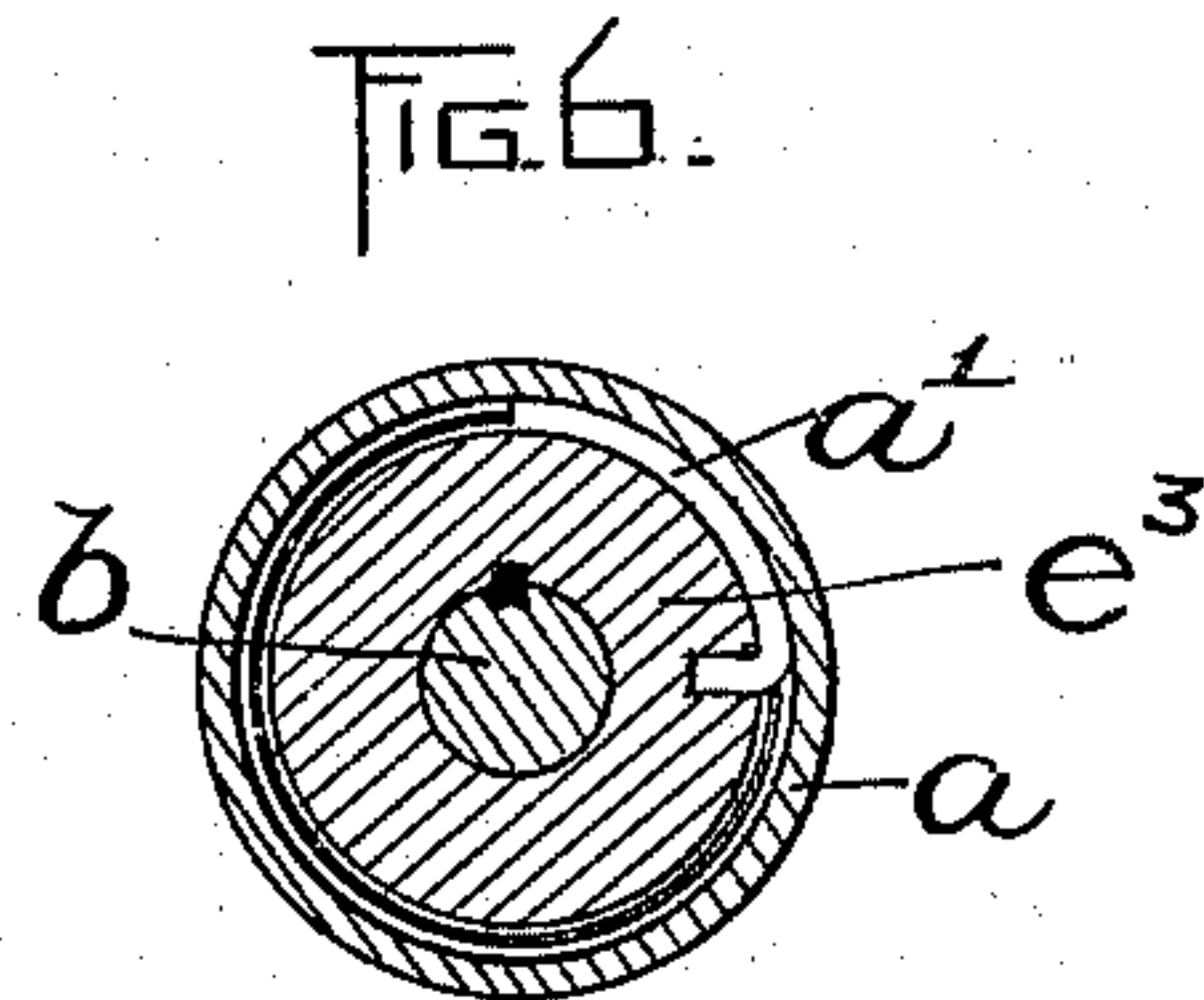
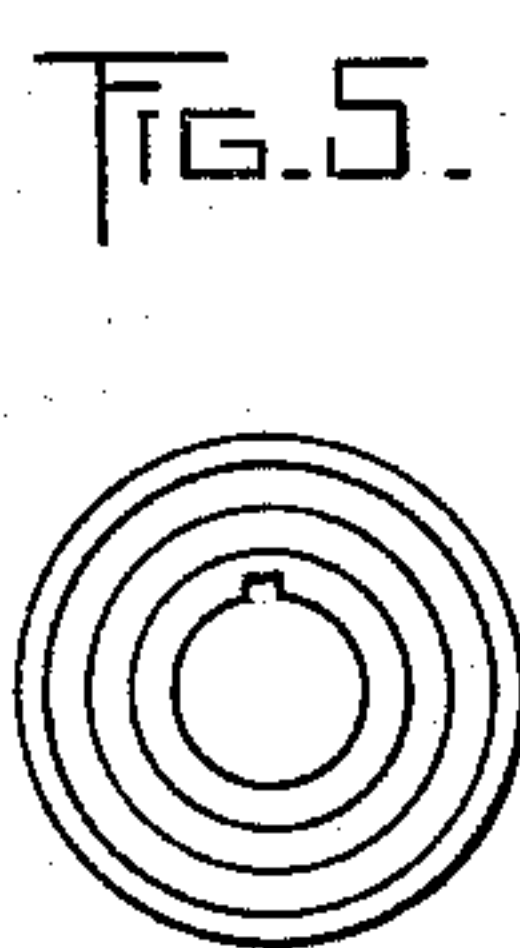
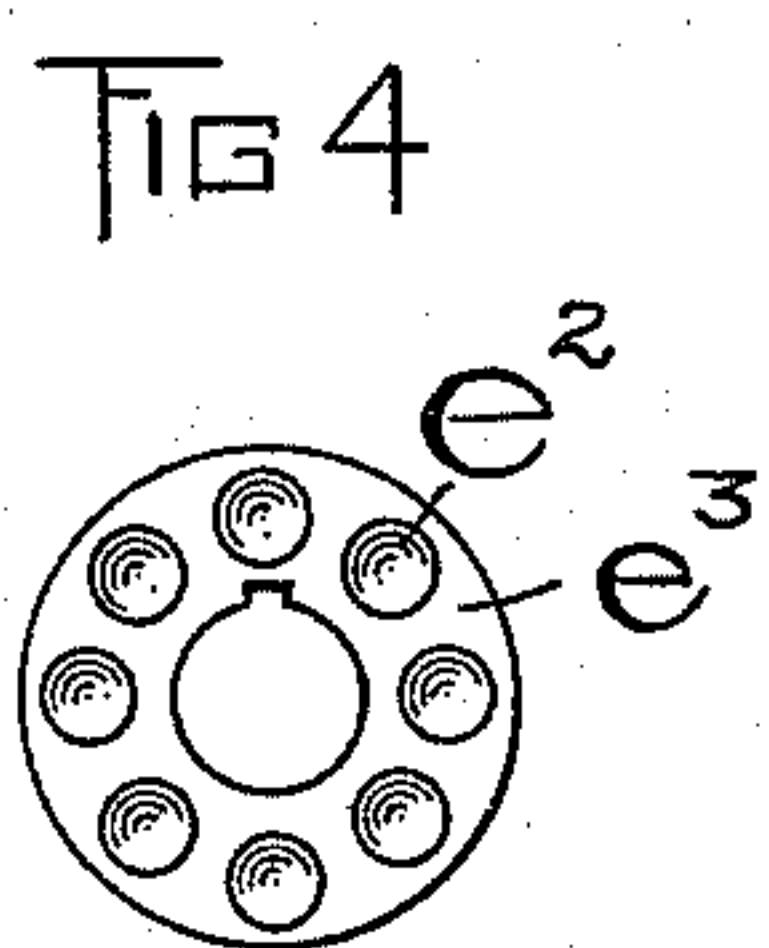
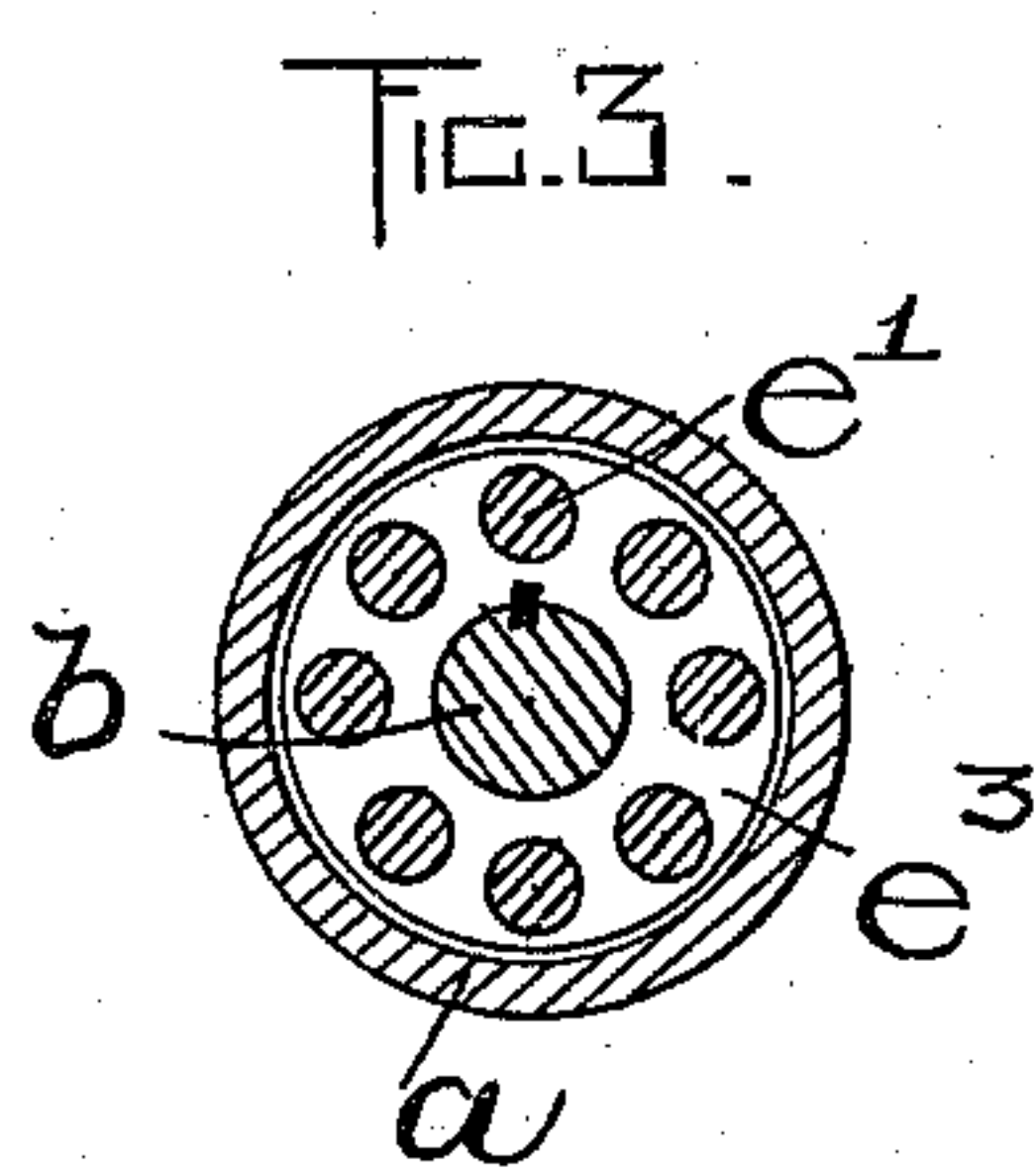
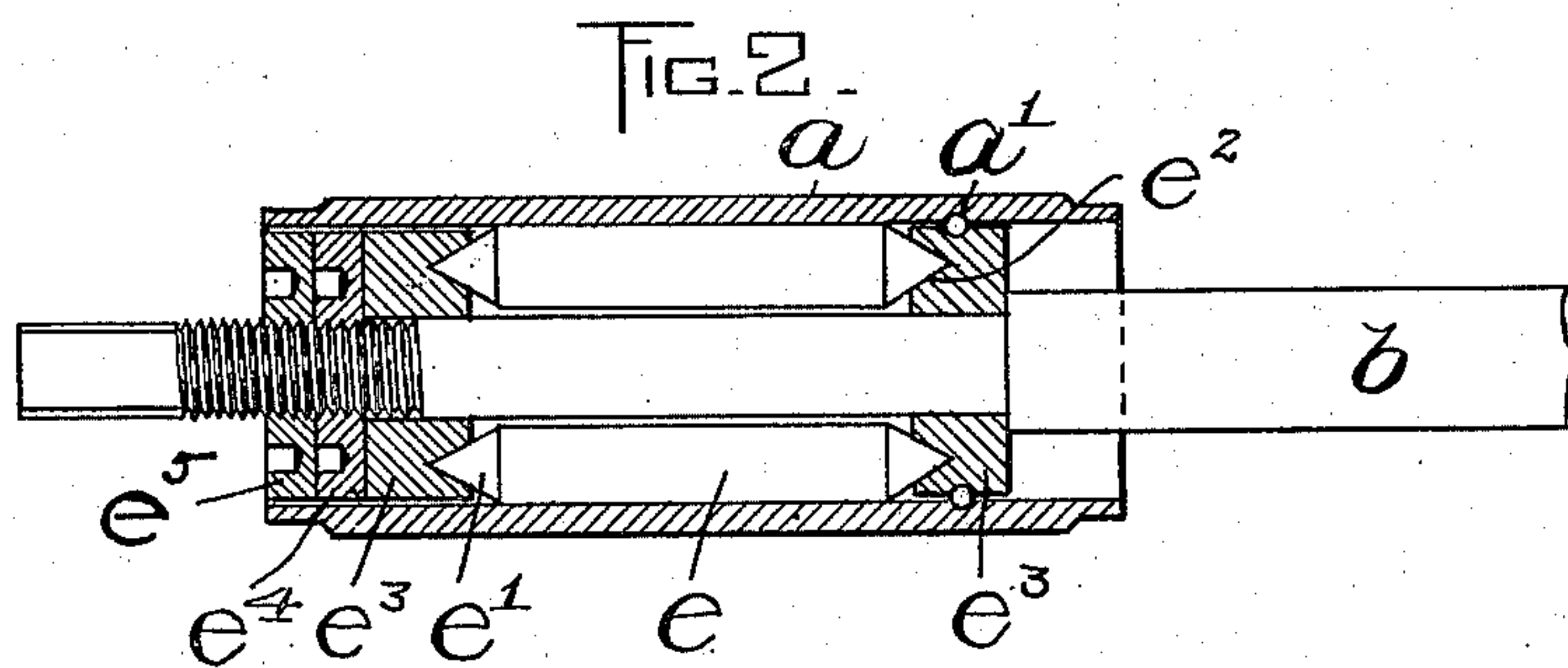
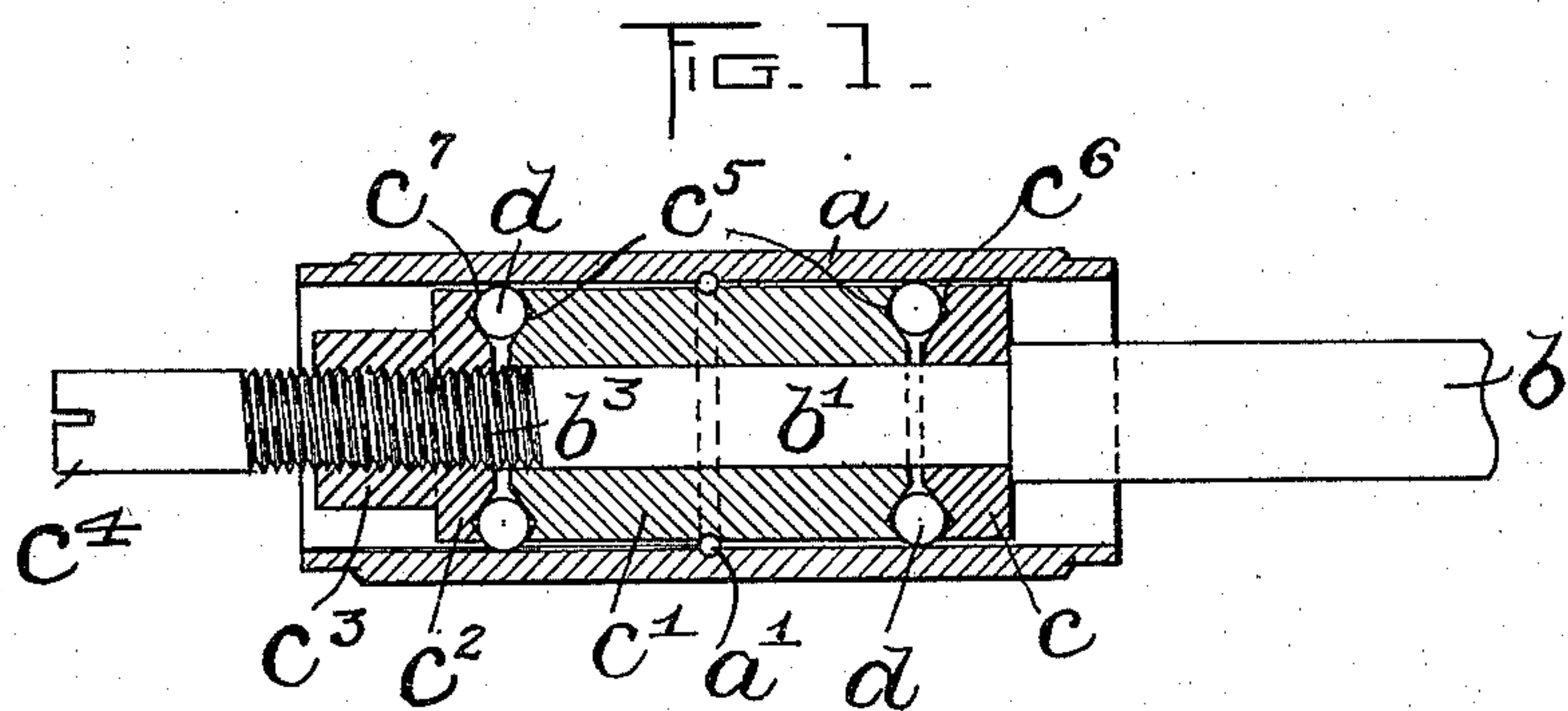
No. 639,211.

Patented Dec. 19, 1899.

L. W. CAMPBELL.
TOP ROLL.

(Application filed Feb. 18, 1899.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

LEON W. CAMPBELL, OF WOONSOCKET, RHODE ISLAND, ASSIGNOR OF ONE-HALF TO MALCOLM CAMPBELL, OF BOSTON, MASSACHUSETTS.

TOP ROLL.

SPECIFICATION forming part of Letters Patent No. 639,211, dated December 19, 1899.

Original application filed October 29, 1898, Serial No. 694,950. Divided and this application filed February 18, 1899. Serial No. 705,946. (No model.)

To all whom it may concern:

Be it known that I, LEON W. CAMPBELL, of Woonsocket, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Top Rolls, of which the following is a specification.

This invention has relation to top rolls for spinning-machines, fly-frames, drawing-frames, and the like such as shown in my Letters Patent No. 578,705, dated March 7, 1897, or in my copending application, Serial No. 694,950, filed October 29, 1898, of which this is a division, and has for its object to provide certain improvements therein whereby they may revolve with greater rapidity and with less friction than heretofore and whereby they will not require the employment of oil or other lubricant, which, as is well known, is liable to injure the leather coverings of the rolls and spoil the yarn and will consequently last longer and cheapen the cost of production of the yarn or thread.

To these ends the invention consists of a top roll embodying certain features of construction and relative arrangement of parts, all as fully illustrated upon the accompanying drawings now to be described in detail and finally pointed out in the claims hereto appended.

Reference is to be had to the accompanying drawings, and to the letters marked thereon, forming a part of this specification, the same letters designating the same parts or features, as the case may be, wherever they occur.

Of the drawings, Figure 1 represents an embodiment of the invention in which there is a shell detachably rotatable on antifriction-balls supported by a stationary spindle. Fig. 2 represents another form of the invention in which antifriction-rolls are employed in lieu of balls. Fig. 3 represents a transverse section through the end of the roll shown in Fig. 2. Fig. 4 shows one of the collars or roll-retainers detached. Fig. 5 represents a modified form of collar or roll-retainer. Fig. 6 represents a cross-section through the end of the roll and shows the clip for holding the shell against axial movement.

Referring to the drawings, *a* indicates a top

roll or rotary member, which is cylindrical, as shown, and which may receive a suitable covering of leather or other material. It is journaled upon the end of a stationary member or spindle *b* in antifriction-bearings supported by the latter. The stationary member or spindle *b*, of which one end is shown, is provided with a reduced portion *b'* and a shoulder *b²*, and placed upon the reduced portion *b'* are three collars or sleeves *c*, *c'*, and *c²*, the latter being provided with a hub *c³*, which is internally threaded, whereby it is screwed upon the threaded end *b³* of the spindle and is held in adjustment by a screw *c⁴*, abutting against the end of the spindle, as shown. The sleeve or collar *c'* is provided at its ends with grooves *c⁵* *c⁵*, which are diametrically opposite grooves *c⁶* *c⁷* in the collars *c* *c²*, respectively, and in the said grooves are placed antifriction-balls *d* *d*. Portions of said balls project beyond the periphery of the said collars to receive the shell or rotary member *a*, which, as previously stated, is shod with leather. To prevent the shell from slipping endwise or axially, it and the collar or sleeve *c'* are provided with diametrically opposite grooves adapted to receive a spring-wire *a'*, one end of which is inserted in the collar *c'*. According to this arrangement the shell or roll rotates on the antifriction-balls *d*, being adapted to be removed whenever desired by drawing upon it with more or less force, so as to press the wire *a'* down into the groove in the collar *c'*.

In Fig. 2 the shell *a* is journaled upon rollers *e*, having tapering ends *e'*, projecting into conical sockets *e²* in the collars *e³*, splined upon the reduced end *b'* of the spindle or stationary bearing *b*. One of the collars *e³* bears against the shoulder *b²*, while the other one is adjusted by the lock-nuts *e⁴* *e⁵*, screwed upon the threaded ends of the spindle. The shell is held against accidental movement by the spring-wire *a'*, one end of which is fastened to one of the collars *e³*. Instead of inserting the tapering ends of the rolls in tapering sockets in the separator-rolls I may form said sockets with annular V-shaped grooves, as shown in Fig. 5.

From the foregoing description it will be apparent that the roll or rotary member is freely detachable from the stationary member without disturbing the relations of the anti-
5 friction devices and that its interior is cylindrical except for the annular groove to receive the fastener a' . The stationary member receives and supports the collars, which maintain the antifriction devices in position, and
10 one of the collars is adjustable toward and from the other to compensate for wear. The shell directly engages the antifriction devices, whereby I avoid the necessity of a rotary sleeve such as is shown in my prior patent
15 previously referred to.

Having thus explained the nature of the invention and described a way of constructing and using the same, although without attempting to set forth all of the forms in which
20 it may be made or all of the modes of its use, I declare that what I claim is—

1. A top roll embodying a rotary member, a stationary member adapted to support the saddle, a plurality of antifriction devices inserted between said members, and each having
25 its periphery engaging and assisting in supporting said rotary member, and means whereby said shell may be detached from said stationary member without removing or displacing said antifriction devices.
30

2. A top roll embodying a rotary leather-shod sleeve or shell, a stationary spindle adapted to receive and support a saddle, said sleeve or shell being detachable from the
35 spindle, antifriction devices inserted between said shell and spindle, and non-rotary means independent of said shell supported by said spindle for maintaining the antifriction de-

vices in place, whereby the removal of the shell does not cause the displacement of the said
40 antifriction devices.

3. A top roll comprising a stationary member adapted to support the saddle, collars on said stationary member, a plurality of antifriction devices supported by the collars, a rotary
45 member supported directly upon and engaging the peripheries of all of said antifriction devices, said rotary member being movable axially, and means for detachably holding said rotary member against axial
50 movement.

4. A top roll comprising a stationary member, adapted to receive and support a saddle, non-rotary collars on said stationary member, antifriction-rollers held in operative position
55 by said collars, a rotary member or shell supported directly upon and rotatable on said rollers, and means for detachably holding said shell against longitudinal or axial movement relatively to said rolls.
60

5. A top roll comprising a stationary member adapted to receive and support a saddle, collars on said stationary member, antifriction-bearings supported and held in operative
65 position by said collars, the peripheries of said antifriction devices projecting axially beyond said collars, a rotary sleeve having a cylindrical interior, and supported directly by said devices, and means for detachably holding said sleeve against axial movement.
70

In testimony whereof I have affixed my signature in presence of two witnesses.

LEON W. CAMPBELL.

Witnesses:

WILLIAM G. RICH,
STEPHEN L. HARRIS.