

No. 684,422.

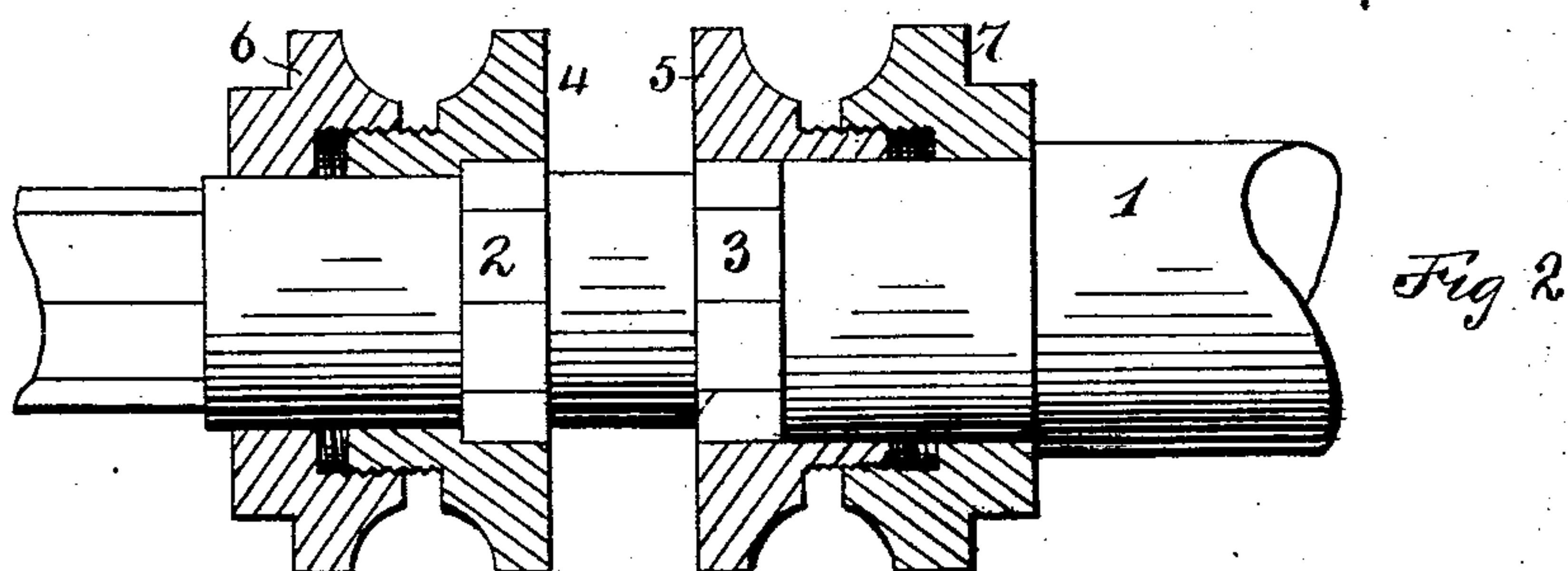
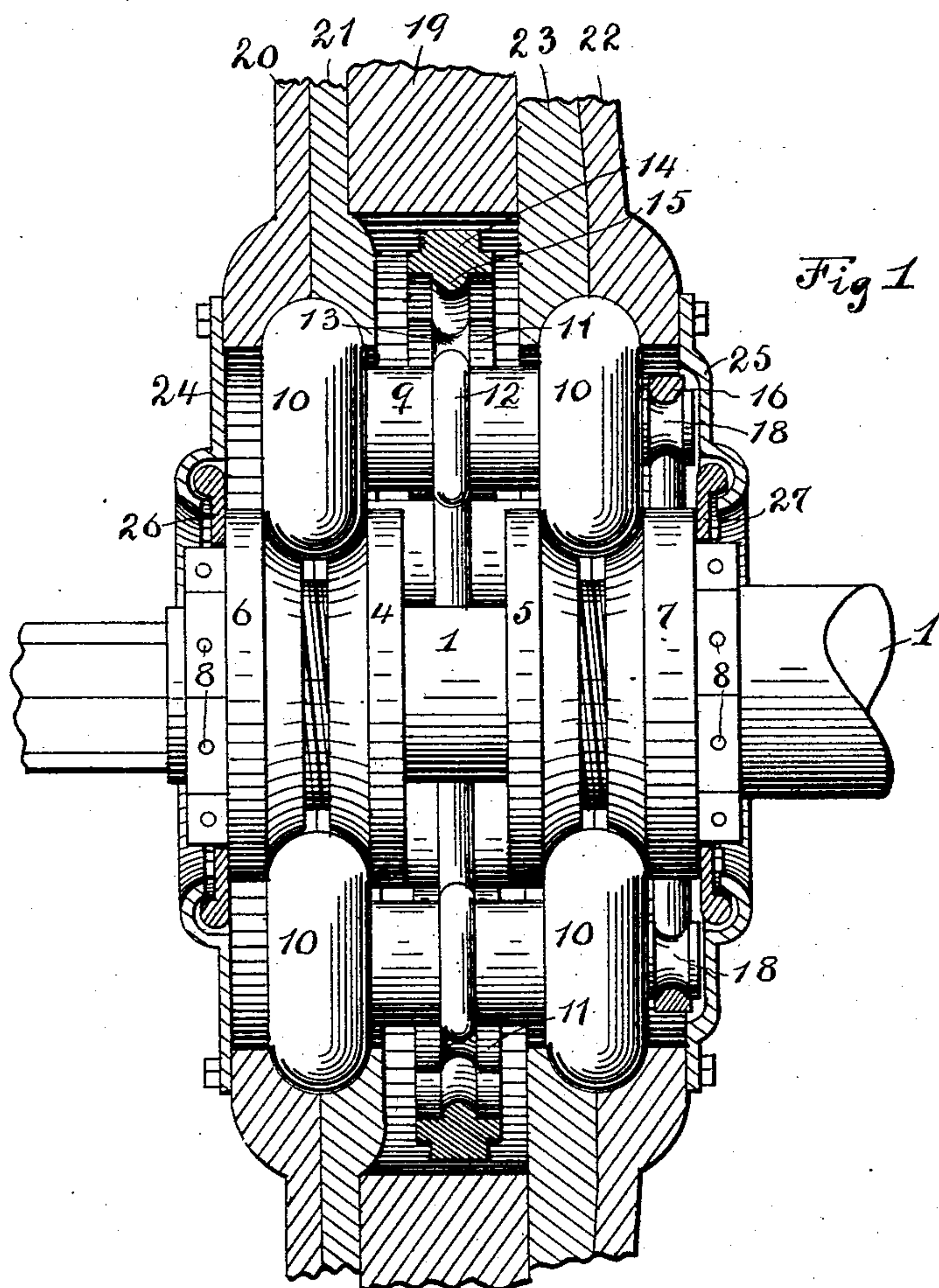
Patented Oct. 15, 1901.

J. F. FOSTER.
ROLLER BEARING.

(Application filed Aug. 28, 1899.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES:

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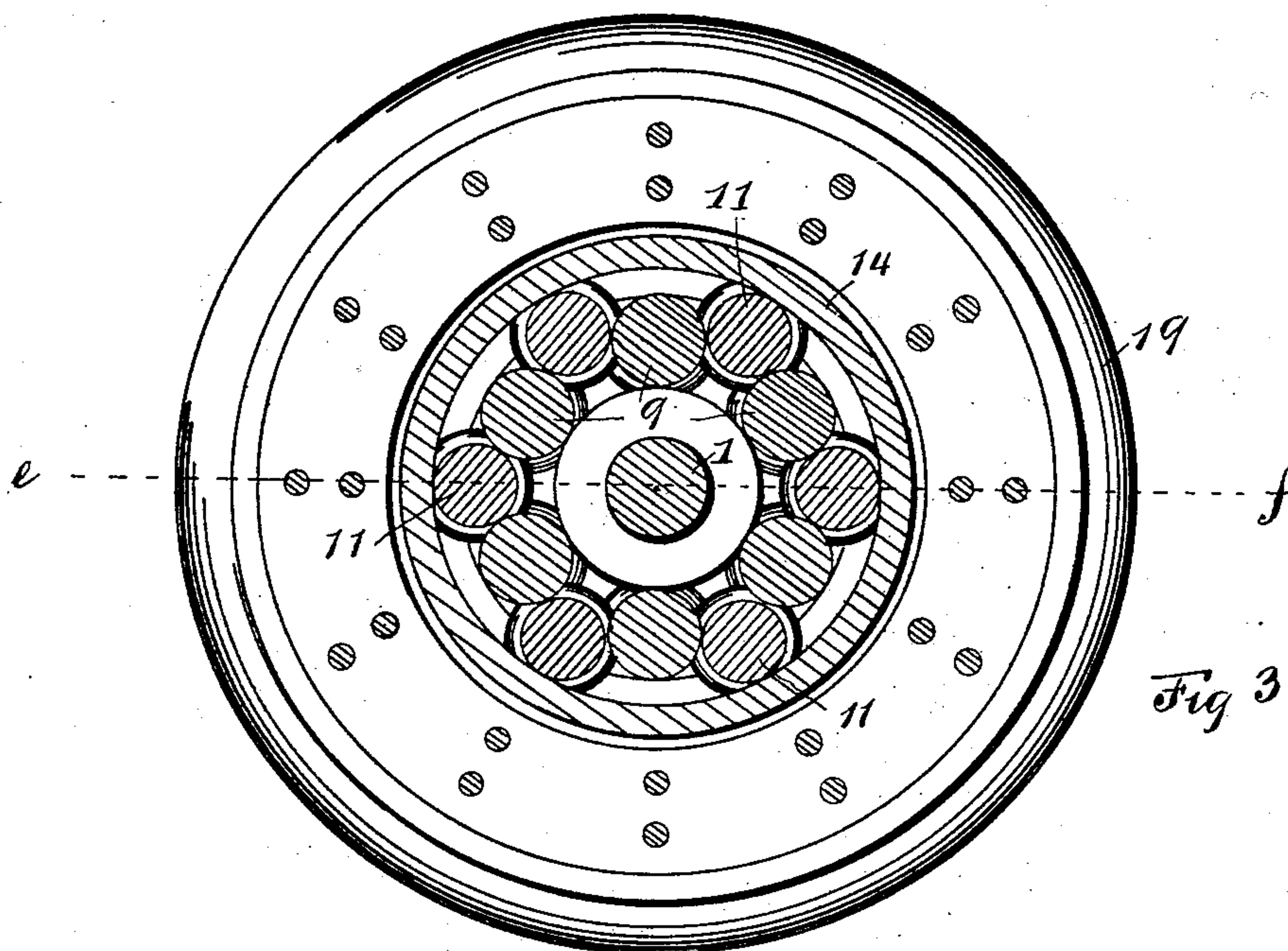


Fig 3

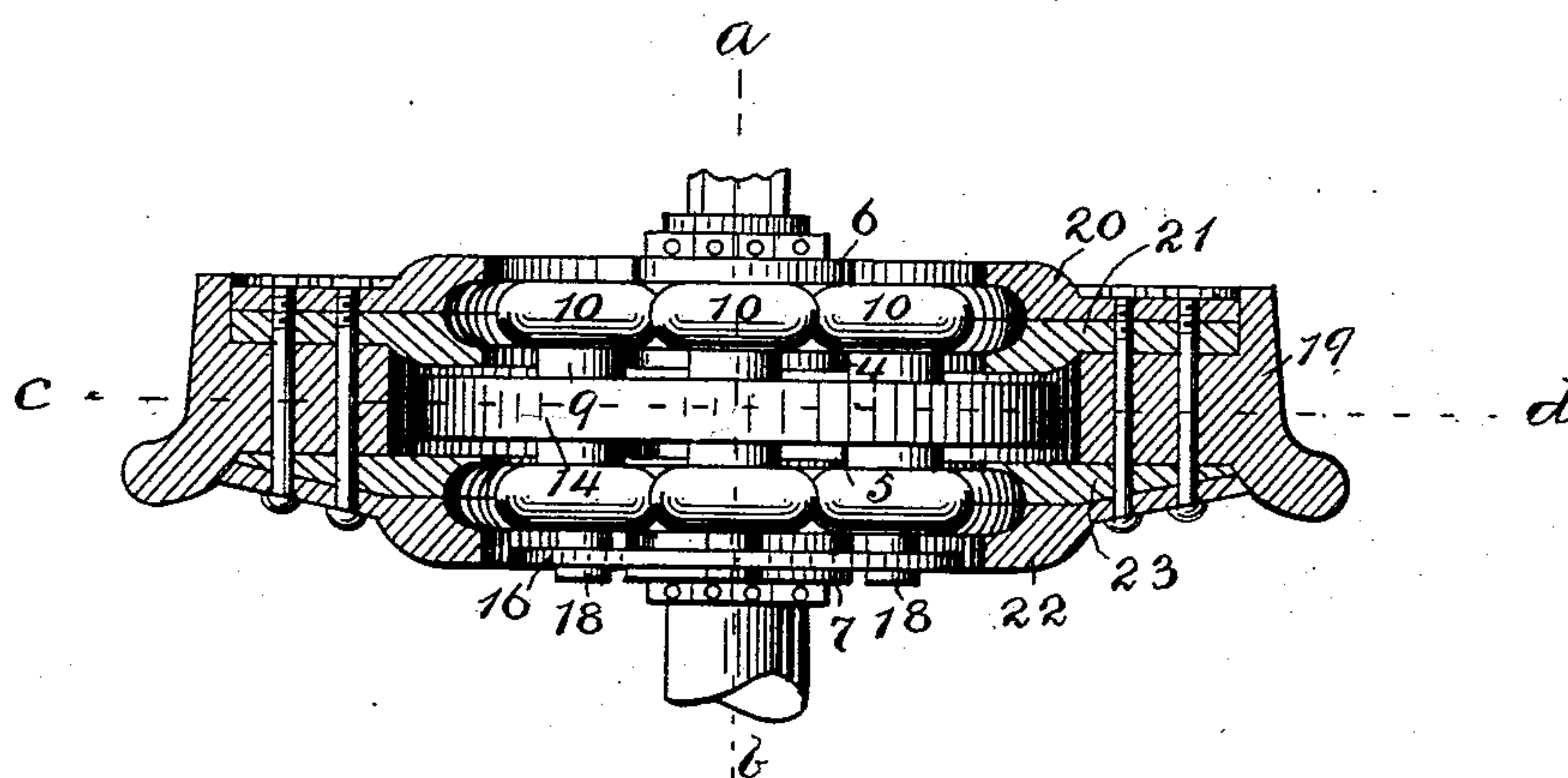


Fig 4

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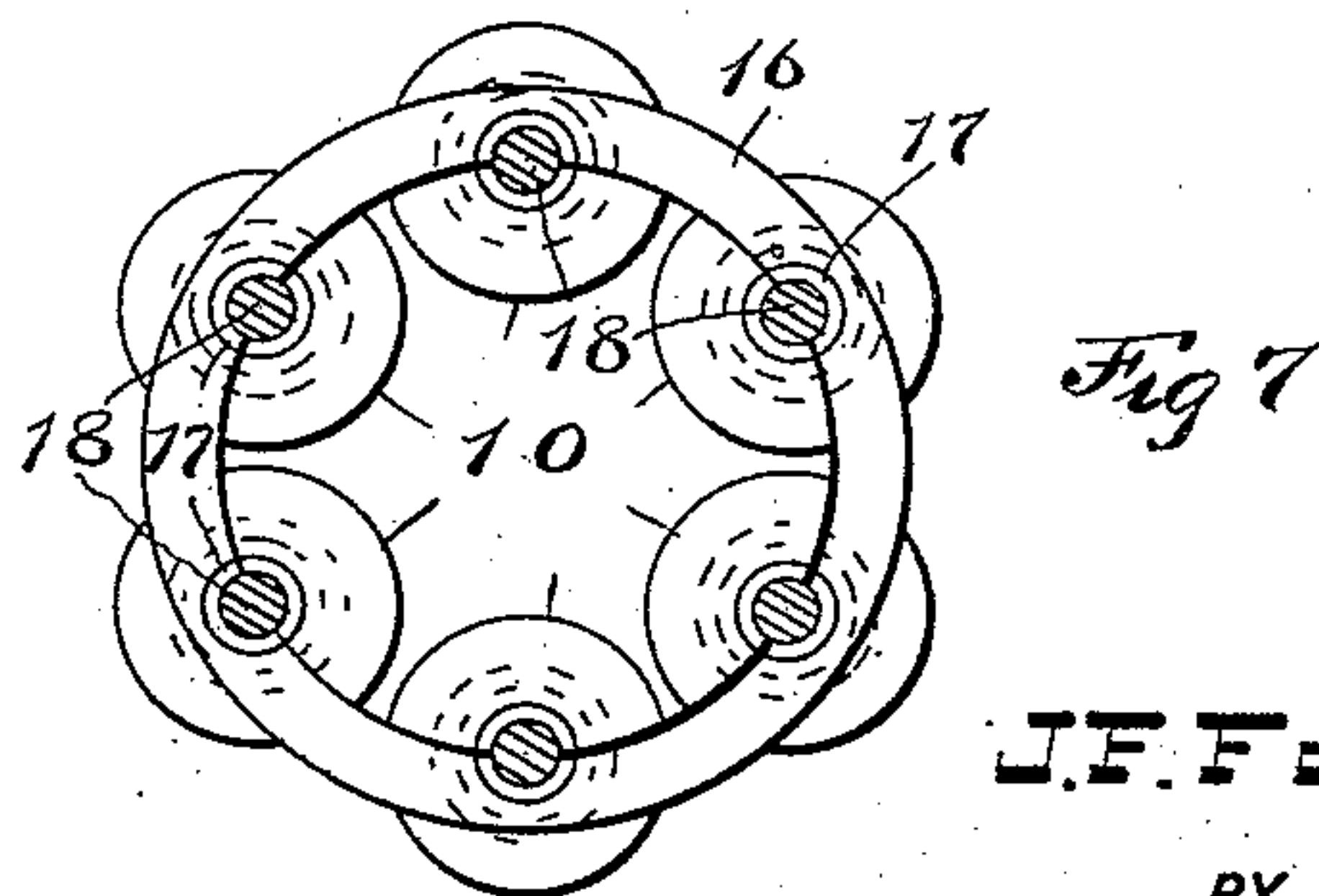
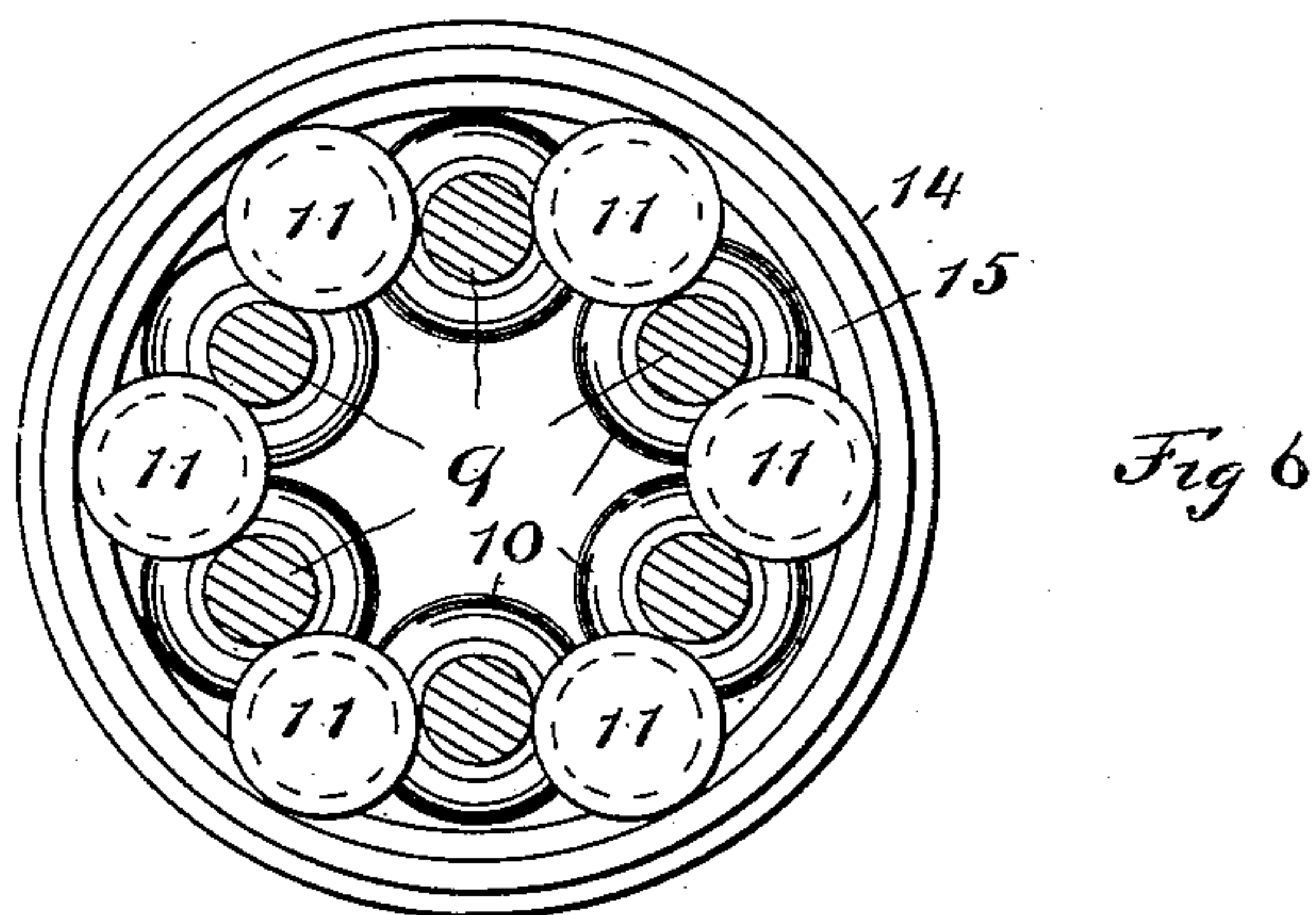
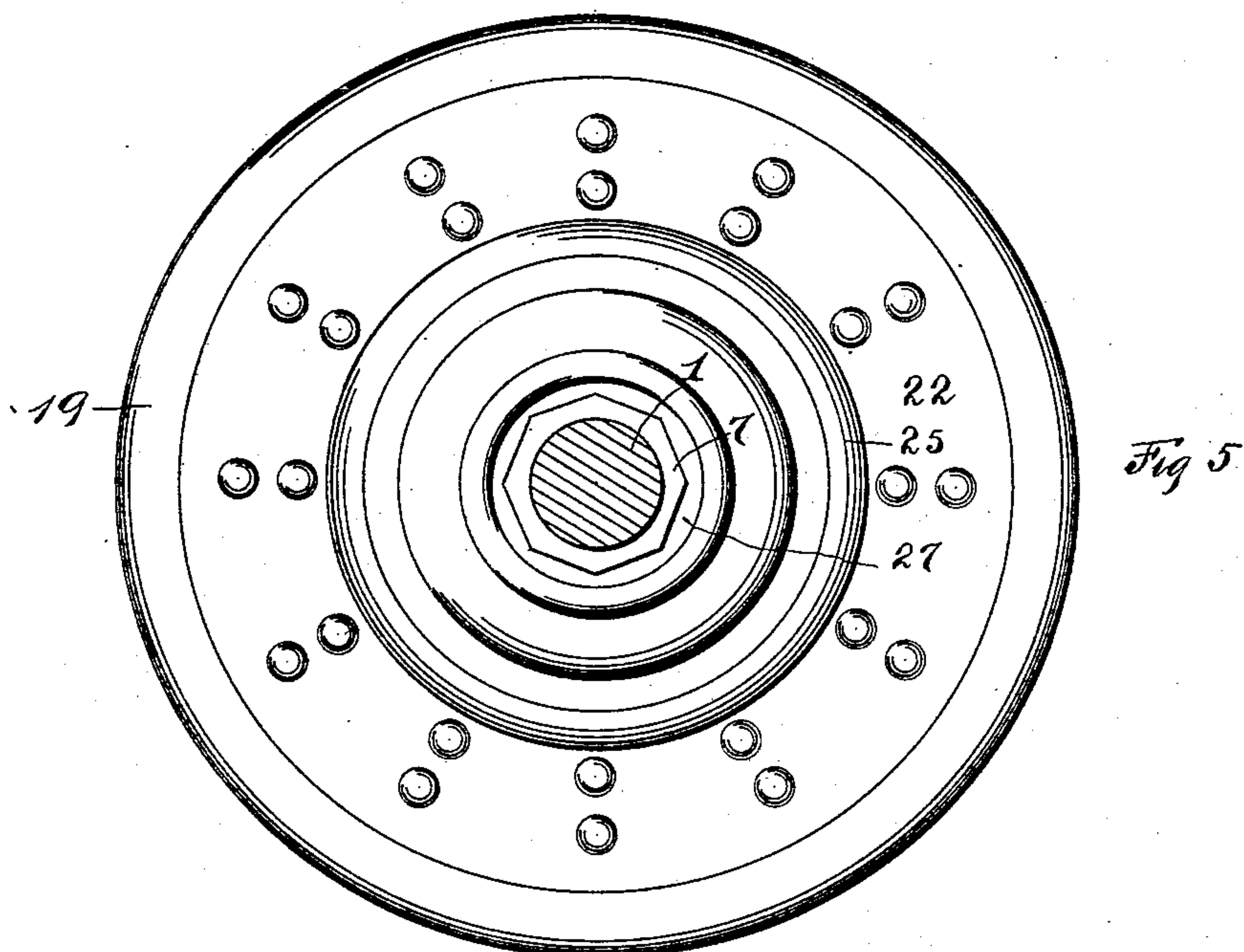
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3 Sheets—Sheet 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN FRANKLIN FOSTER, OF ARGENTINE, KANSAS.

ROLLER-BEARING.

SPECIFICATION forming part of Letters Patent No. 684,422, dated October 15, 1901.

Application filed August 28, 1899. Serial No. 726,661. (No model.)

To all whom it may concern:

Be it known that I, JOHN FRANKLIN FOSTER, a citizen of the United States, residing at Argentine, in the county of Wyandotte and State of Kansas, have invented a new and useful Improvement in Roller-Bearings for Vehicles, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in roller-bearings for vehicles.

My invention provides a novel construction of roller-bearings interposed between the axle and the rim of the wheel.

It provides, further, other novel features of construction hereinafter fully described and claimed.

In the accompanying drawings, which illustrate my invention, Figure 1 is a vertical sectional view taken on the dotted line *ab* of Fig. 4, some parts being shown in elevation and portions being broken away. Fig. 2 is a longitudinal vertical sectional view of the cones mounted on the axle, which is shown in elevation. Fig. 3 is a transverse vertical sectional view taken on the dotted line *cd* of Fig. 4, the wheel-rim being shown in elevation and not in section. Fig. 4 is a horizontal sectional view taken on the dotted line *ef* of Fig. 3, the encircling ring, rollers with the enlarged circular heads, cones, and the spacing-ring being shown entire. Fig. 5 is an end view of the wheel, the axle being shown in vertical cross-section. Fig. 6 is an end elevation view of the spacing-rollers and encircling ring, the rollers with the circular heads being shown in cross-section. Fig. 7 is an end view of the spacing-ring and the circular heads of the rollers, the axial projections thereon being represented in cross-section.

Similar numerals of reference indicate similar parts.

1 indicates the axle, provided with the two octagonal portions 2 and 3. Fitted on the said octagonal portions 2 and 3 are two cones 4 and 5, respectively, provided with externally-screw-threaded sleeve projections, on which are fitted, respectively, the cones 6 and 7, provided each with an octagonal end having radially-disposed screw-threaded holes 8, in

which may be placed set-screws for securing the cone to the axle. Arranged around the cones 4, 5, 6, and 7, respectively, and bearing thereon are a series of dumb-bell-shaped rollers 9, provided with circular heads 10, which are the portions of the rollers which bear upon the cones. For keeping the rollers 9 at suitable distances apart I have provided a series of spacing-rollers 11, disposed alternately between the rollers 9 and having a tongue-and-groove connection therewith to prevent lateral movement of the spacing-rollers relative to the main rollers 9. This tongue-and-groove connection is provided, preferably, by providing in the middle of each roller 9 an annular flange 12, which fits into an annular recess or depression 13, provided in each of the rollers 11. A ring 14, provided on its inner wall with an annular flange 15, embraces the spacing-rollers 11, the flange 15 fitting the peripheral recesses 13 of the spacing-rollers. An additional spacing mechanism is provided, comprising a ring 16, provided on its inner wall with recesses 17, which fit, respectively, the peripherally-grooved axial projections 18, extending one each from one end from each roller 9.

19 indicates the wheel-rim, to which the wheel-hub is secured. The wheel-hub comprises the end plates 20 21 and 22 23, secured, respectively, to the inner and outer ends of the wheel-rim, the ring-plates 21 and 23 being secured to the wheel-rim directly and the ring-plates 20 and 22 being secured, respectively, to the outsides of the plates 21 and 23. Each of the ring-plates of the hub is provided with an inner annular seat, in which run the circular heads of the rollers 9. To prevent ingress of dust into the roller-bearings of the wheel, dust-guards are provided, comprising the inwardly-extending ring-plates 24 and 25, secured, respectively, to the hub-plates 20 and 22 and provided each at its inner edge with a curved annular recess overlapping an outwardly-extending flange on the periphery of a ring secured to the adjacent cone. These cone-rings are secured, respectively, as follows: the ring 26 to the cone 6 and the ring 27 to the cone 7. The octagonal portion 2 is of the same size or smaller than the similarly-shaped portion 3

of the axle, so that the cones 5 and 7 may be slipped off and on the axle. Lateral movement of the cones on the axle for the purpose of adjustment may be accomplished after loosening the set-screws (not shown) which hold the cones on the axle.

In operation the rollers 9 run around the cones 4, 5, 6, and 7, the adjustment of which is obtained by properly rotating the cones 6 and 7 on the threaded portions of the cones 4 and 5, respectively. The rollers 9 are kept separate from each other by means of the spacing-rollers 11 and the spacing-ring 16.

My invention is adapted to use on various kinds of vehicles, such as carriages, wagons, cars, &c.

Various modifications may be resorted to while remaining within the scope of my invention.

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

1. In roller-bearings for vehicles, the combination with the axle, of two cone-bearings mounted thereon, a series of rollers provided with circular heads arranged around and bearing upon the two cone-bearings respectively, a spacing-ring provided with inner recesses engaging each one of said rollers, the wheel the hub of which is provided with annular seats embracing the two sets of roller-heads respectively, a series of spacing-rollers disposed one between each adjacent two of the other rollers, and a ring embracing the said spacing-rollers, substantially as described.

2. In roller-bearings for vehicles, the combination with the axle, of two cone-bearings mounted thereon, a series of rollers provided with circular heads arranged around and bearing upon the two cone-bearings respectively, a spacing-ring provided with inner recesses engaging each one of said rollers, the wheel the hub of which is provided with annular seats embracing the two sets of roller-heads respectively, and means independent of the said spacing-ring for retaining the rollers in proper position, substantially as described.

3. In roller-bearings for vehicles, the combination with the axle, of two cone-bearings mounted thereon, a series of rollers provided with circular heads arranged around and bearing upon the two cone-bearings respectively, the wheel the hub of which is provided with annular seats embracing the two sets of roller-heads respectively, and a spacing-ring provided with inner recesses engaging each one of said rollers, substantially as described.

4. In roller-bearings for vehicles, the combination with the axle, of two cone-bearings mounted thereon, a series of rollers provided with circular heads arranged around and bearing upon the two cone-bearings respectively, the wheel the hub of which is provided with annular seats embracing the two sets of roller-heads respectively, and a spacing-ring

provided with inner recesses having each a tongue-and-groove connection with each of the said rollers, substantially as described.

5. In roller-bearings for vehicles, the combination with the axle, of two cone-bearings mounted thereon, a series of rollers provided with circular heads arranged around and bearing upon the two cone-bearings respectively, the wheel the hub of which is provided with annular seats embracing the two sets of roller-heads respectively, and a spacing-ring provided with inner recesses, each recessed portion being disposed in a peripheral groove provided in each roller, substantially as described.

6. In roller-bearings for vehicles, the combination with the axle, of two cone-bearings mounted thereon, each of said bearings comprising two cones relatively adjustable toward and from each other, a series of rollers provided with circular heads arranged around and bearing upon the two cone-bearings respectively, the wheel the hub of which is provided with annular seats embracing the two sets of rollers respectively, and a spacing-ring embracing the said rollers and provided with means for retaining the rollers at proper distances apart, substantially as described.

7. In roller-bearings for vehicles, the combination with the axle, of cones mounted thereon, a series of rollers provided with circular heads arranged around and bearing upon the said cones, the wheel the hub of which is provided with annular seats embracing the said circular heads, a spacing-ring embracing the said rollers and provided with means for retaining the rollers at proper distances apart, a series of spacing-rollers disposed alternately between the other rollers, and a ring embracing the said spacing-rollers, substantially as described.

8. In roller-bearings for vehicles, the combination with the axle, of two cones non-rotatably mounted upon the axle, two cones adjustable toward and from the other cones respectively, a series of rollers provided with circular heads arranged around and bearing upon the two sets of cones respectively, the wheel the hub of which is provided with annular seats embracing the two sets of heads respectively, a spacing-ring embracing the said rollers and provided with means for retaining the rollers at proper distances apart, a series of spacing-rollers disposed alternately between the other rollers, and a ring embracing the said spacing-rollers, substantially as described.

9. In roller-bearings for vehicles, the combination with the axle, of two sets of cones mounted thereon, one cone of each set being non-rotatable and the other cone of each set being adjustable toward and from the non-rotatable cones respectively, a series of rollers provided with circular heads arranged around and bearing upon the two sets of cones respectively, the wheel the hub of which is

provided with annular seats embracing the said circular heads respectively, a series of spacing-rollers disposed alternately between the said rollers, and a ring embracing the said spacing-rollers, substantially as described.

10. In roller-bearings for vehicles, the combination with the axle, of two sets of cones mounted thereon, the cones of each set being adjustable toward and from each other, a series of rollers provided with circular heads arranged around and bearing upon the said cones respectively, the wheel the hub of which is provided with annular seats embracing the said roller-heads respectively, a spacing-ring provided with inner recesses engaging each one of the said rollers, a series of spacing-rollers disposed alternately between the other rollers, and a ring embracing the said spacing-rollers, substantially as described.

11. In roller-bearings for vehicles, the combination with the axle, of cones mounted thereon, a series of rollers provided with circular heads arranged around and bearing upon the said cones respectively, the wheel the hub of which comprises two sets of end plates

each set of end plates being provided with oppositely-disposed annular seats embracing the said circular heads, and means for retaining the said rollers at proper distance apart, substantially as described.

12. In roller-bearings for vehicles, the combination with the axle of two sets of cone-bearings mounted thereon, a series of rollers provided with circular heads arranged around and bearing upon the said cone-bearings respectively, the wheel the hub of which comprises two sets of end plates each set of which is provided with oppositely-disposed annular seats embracing the said circular heads, spacing-rollers arranged alternately between the said rollers, and a ring embracing the said spacing-rollers, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN FRANKLIN FOSTER.

Witnesses:

WARREN D. HOUSE,
WILLIAM PITT.