

No. 667,470.

Patented Feb. 5, 1901.

F. G. WARD.
JOURNAL BOX.

(Application filed June 2, 1900.)

(No Model.)

2 Sheets—Sheet 1.

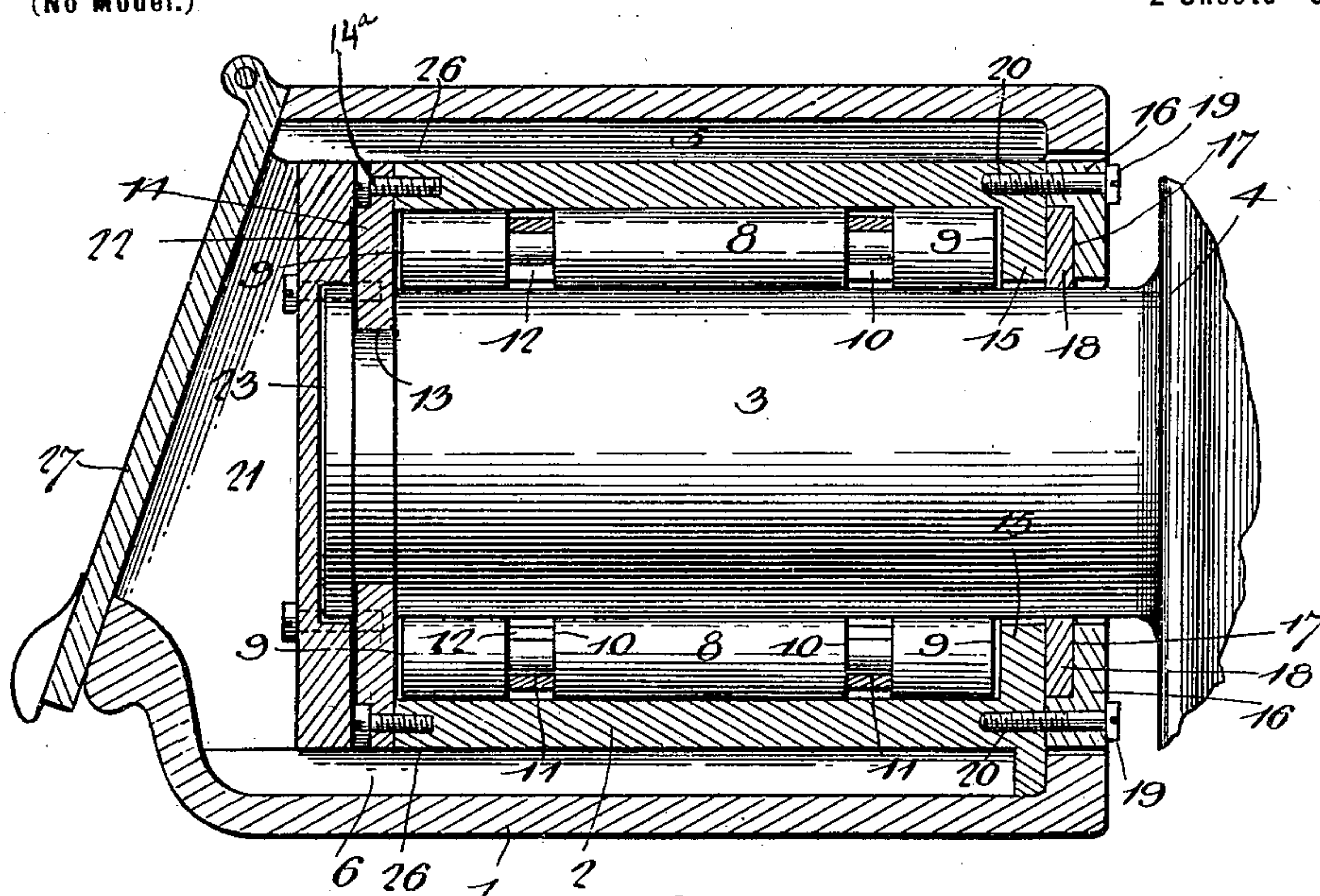


Fig. 1.

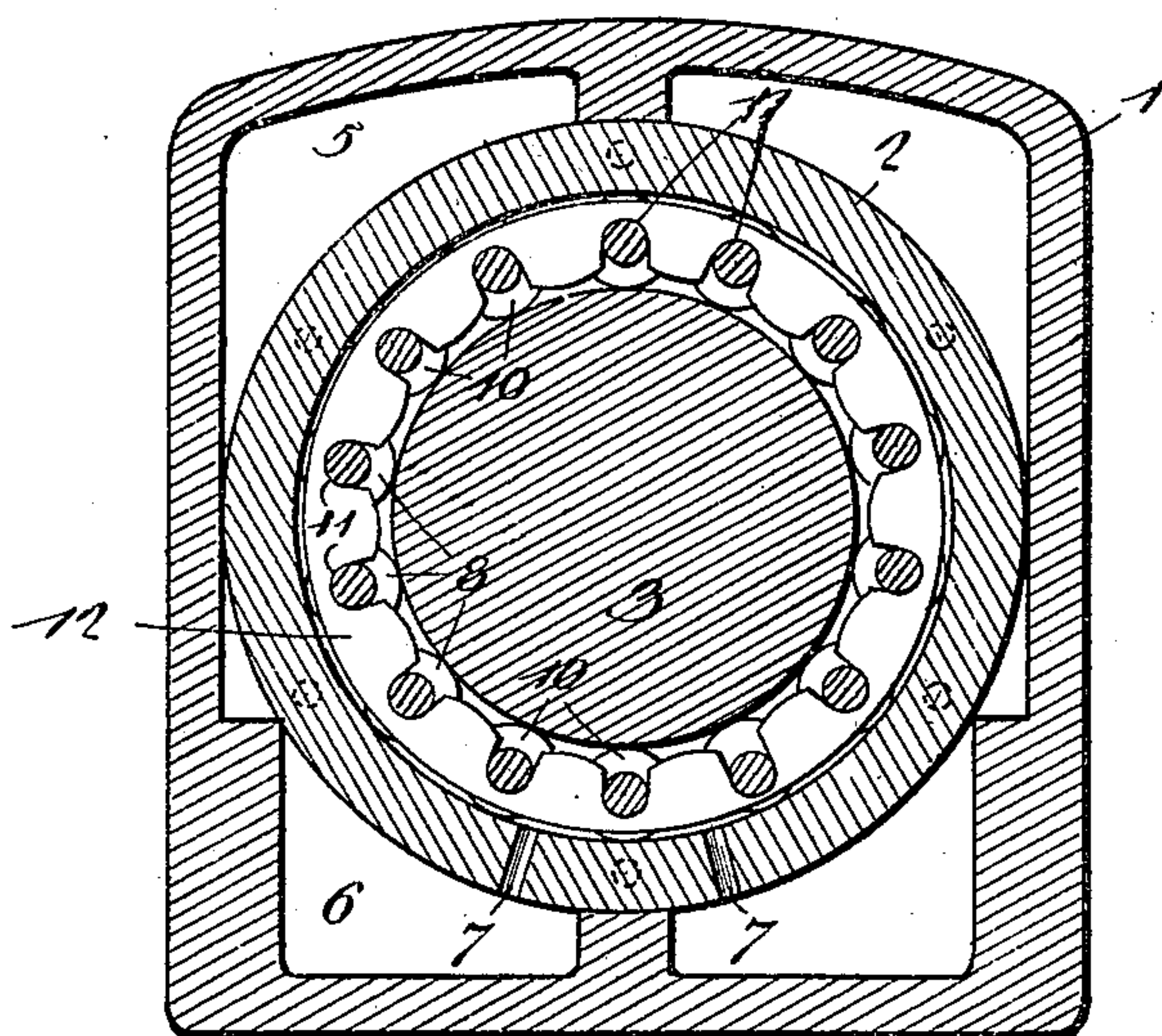


Fig. 2.

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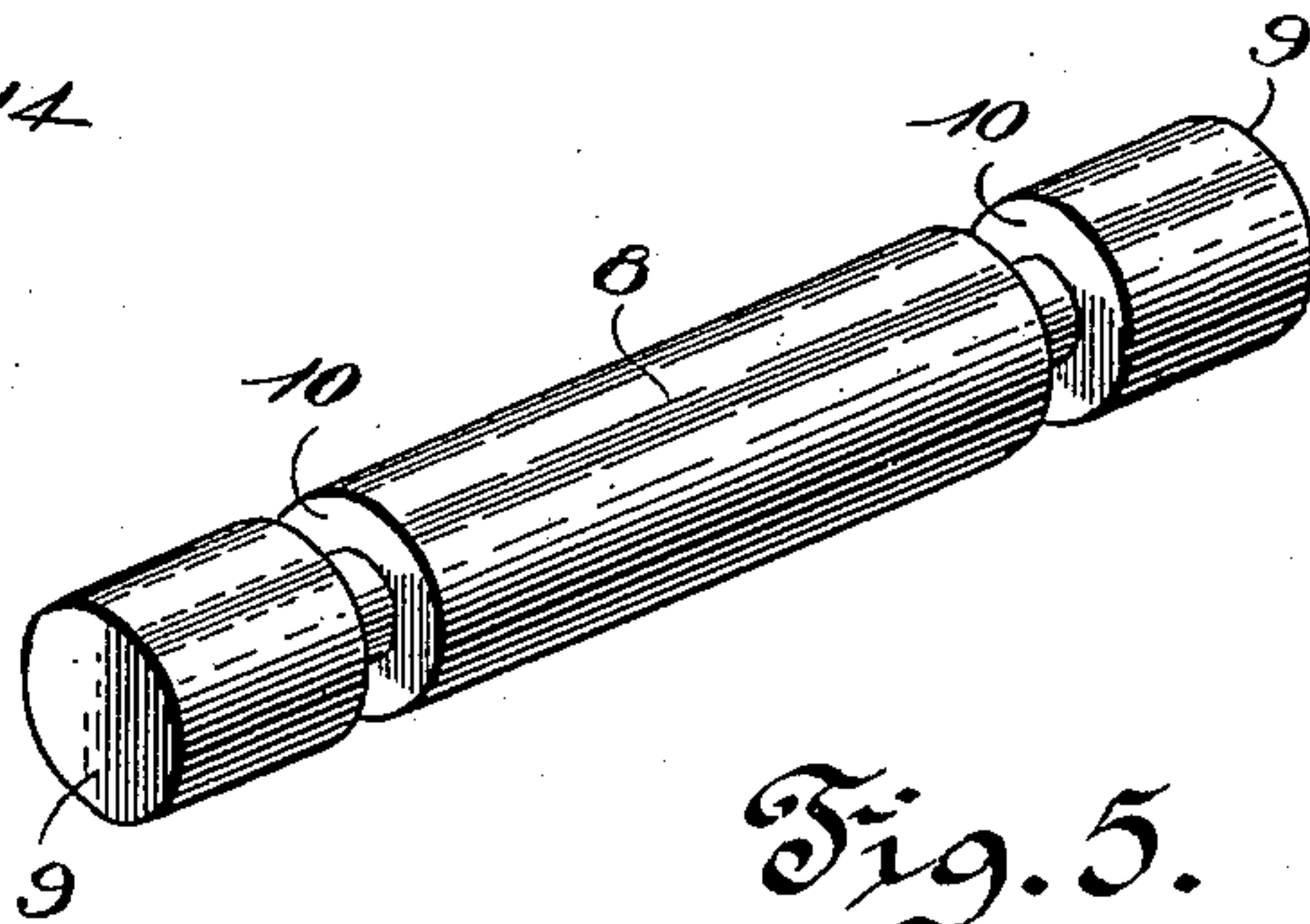
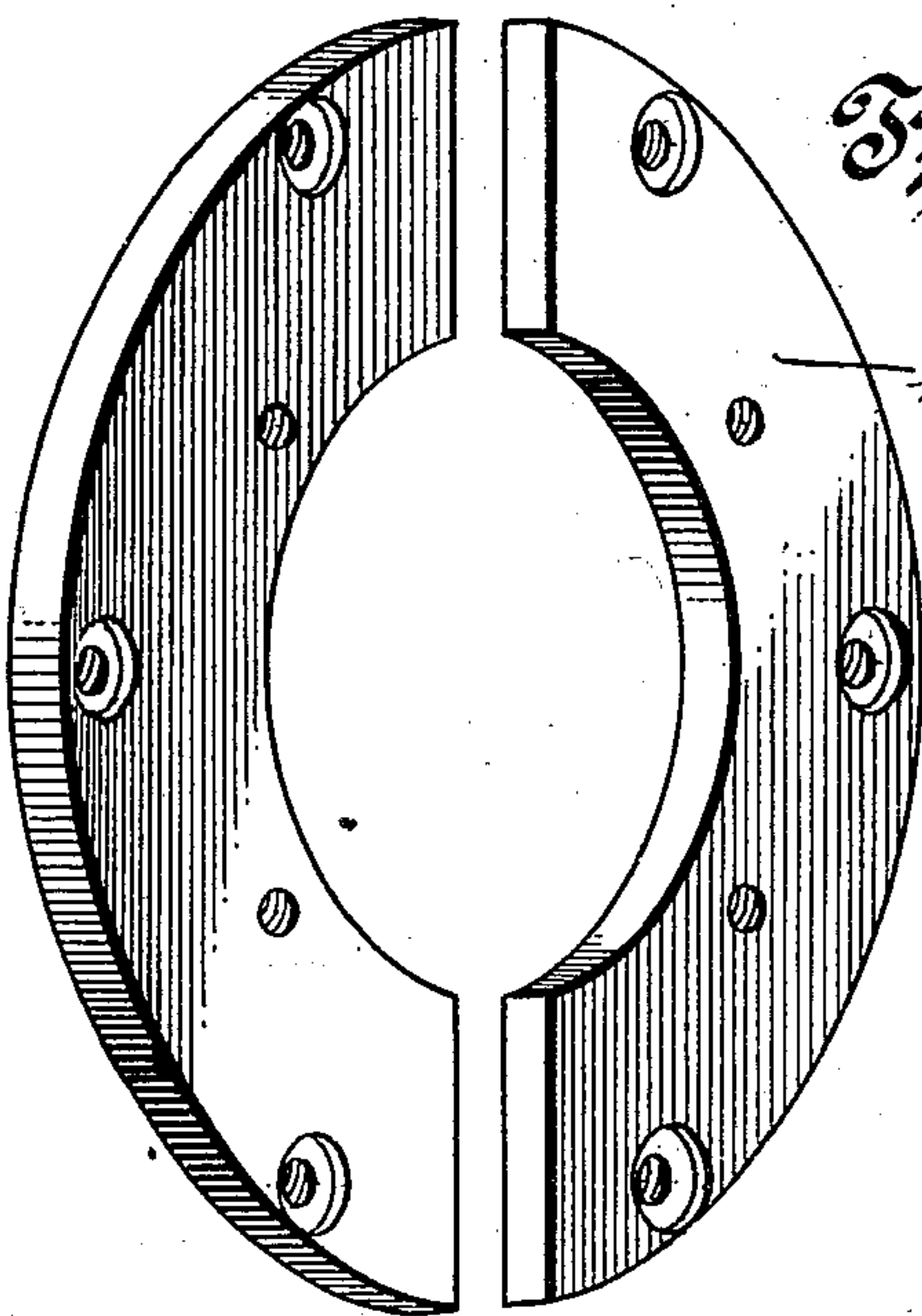
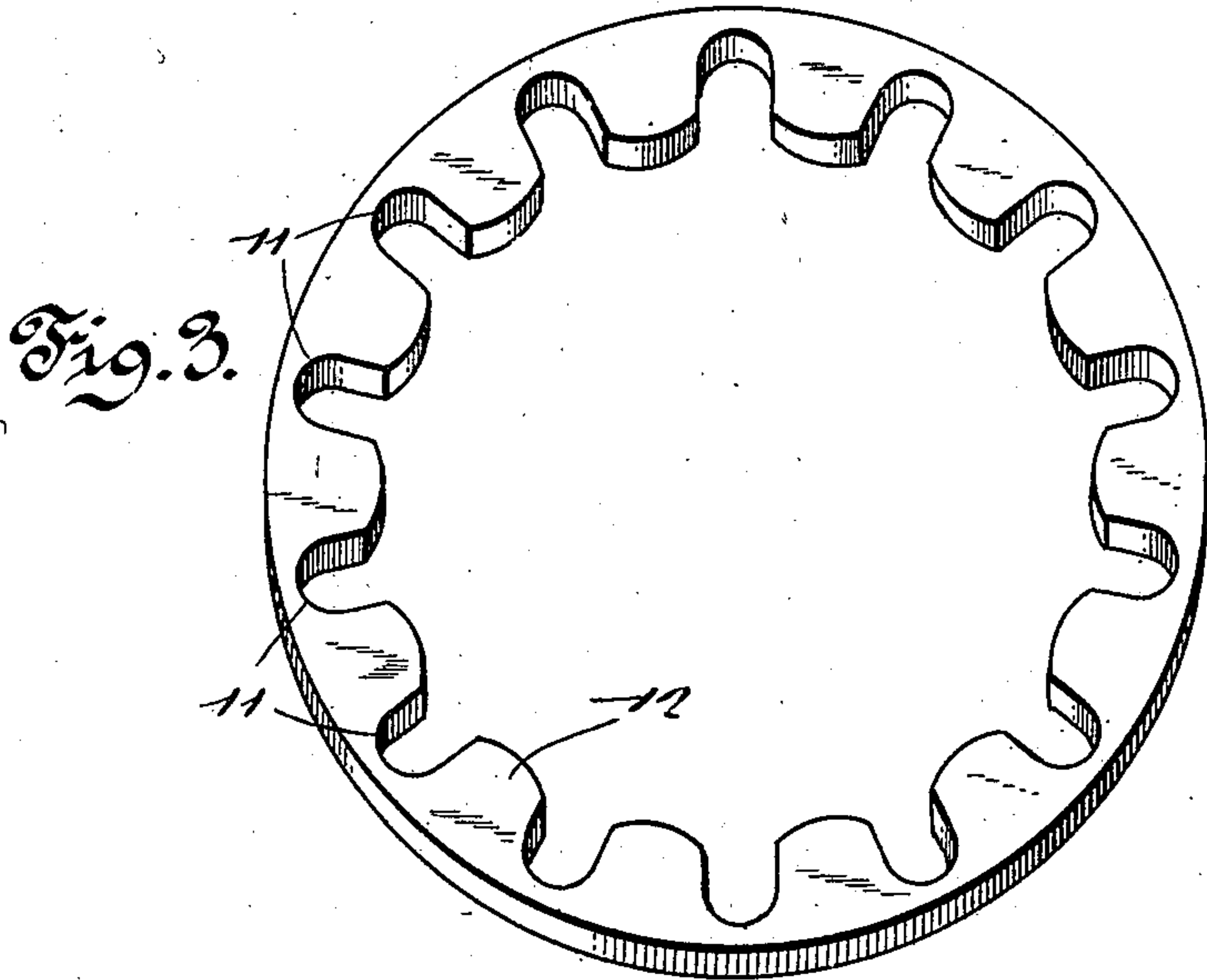
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UNITED STATES PATENT OFFICE.

FREDERICK G. WARD, OF AVALON, PENNSYLVANIA.

JOURNAL-BOX.

SPECIFICATION forming part of Letters Patent No. 667,470, dated February 5, 1901.

Application filed June 2, 1900. Serial No. 18,847. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK G. WARD, a citizen of the United States, residing at Avalon, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Journal-Box, of which the following is a specification.

The invention relates to improvements in journal-boxes.

One object of the present invention is to improve the construction of roll-bearing journal-boxes for railway-cars, heavy machinery, and the like, and to provide a simple and comparatively inexpensive one which will be strong and durable and which will be capable of effectually excluding water and dust and of preventing the antifriction-rolls from becoming twisted or grooving the end of the journal-box or the check-plate.

A further object of the invention is to provide a journal-box of this character which will afford greater street room or space at the sides of a car, which will obviate the necessity of notching the footboards or steps of summer-cars, and which will be out of the way of wagons and other vehicles.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a vertical longitudinal sectional view of a journal-box constructed in accordance with this invention. Fig. 2 is a transverse sectional view on line 2 2 of Fig. 1. Fig. 3 is a detail perspective view of one of the spacing-rings. Fig. 4 is a similar view of the sectional check-plate. Fig. 5 is a detail view of one of the rolls.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a journal-box provided with a cylindrical bearing-sleeve 2, adapted to be formed integral with or separate from the journal-box and receiving the journal 3 of an axle 4; but the said journal-box may be arranged for the reception of the gudgeon of a shaft or the journal of any other piece of machinery. The journal-box is provided at the bottom with a recess 6, forming an oil-cellar, which communicates with the interior of the

bearing by perforations 7, located below the upper portion of the oil-cellar, whereby the bearing will be freely supplied with oil when the cellar is full.

The journal of the axle is of less diameter than the cylindrical bearing-sleeve 2, and an annular series of antifriction-rolls 8 is interposed between the journal and the sleeve to reduce the friction to a minimum. These rolls, which are provided with square-cut ends 9, for a purpose hereinafter described, have annular grooves 10, located near their ends and forming journals which fit in recesses 11 of spacing-rings 12. The recesses of the spacing-rings extend inward from the inner surfaces of the same and are rounded to conform to the configuration of the journals and have straight sides to prevent the rolls from twisting and also to prevent any liability or tendency of the journals working inward to the inner edge or periphery of the rings. The straight side walls also prevent the journals from being broken by being forced beneath the inner edges of the rings through any cause whatever. The spacing-rings, which are supported by the journals of the rolls, are of a thickness less than the diameter of the said rolls, so that their inner surfaces and peripheries are spaced from the journal 3 and from the walls of the sleeve 2 of the journal-box.

The journal 3 of the axle is extended beyond the rolls and beyond the end of the sleeve and is provided in such extended portion with an annular groove 13, receiving a sectional check-plate 14, adapted to be placed in position after the rolls have been assembled and forming a cap for the outer end of the roller-case. The sectional check-plate extends beyond the face of the journal 3 and is adapted to form an abutting face for the flat or square-cut ends of the rolls to arrest the end thrust of the same and prevent the said rolls from twisting out of position. The flat or square-cut ends will not groove the sectional check-plate like tapered or pointed rolls or even rolls having rounded ends, which are liable to break the check-plate by the end thrust. The sections of the check-plate, which are located above and below the journal of the axle, are secured to the sleeve by screws 14^a, passing through perforations of the sec-

tions and engaging suitable threaded sockets of the sleeve.

The sleeve is provided at its inner end with an inwardly-extending annular flange 15, 5 against which the flat or square-cut ends of the rolls are adapted to abut, and secured to the inner end of the journal-box in a recess thereof is an annular collar or stuffing-box 16, 10 which is provided with a recess 17, forming an annular chamber for a gasket 18. The collar is provided with a series of perforations for the reception of screws 19, which engage threaded sockets 20 of the inner end of the sleeve, as clearly shown in Fig. 1. The 15 gasket 18 is preferably constructed of hair felt or other suitable material, hair felt being preferable, as it is elastic and will enable an absolute dust-proof joint or connection to be provided without creating friction. The col- 20 lar or stuffing-box is adapted to be adjusted by the screws 19 to compress the gasket and cause the same to conform closely to the journal of the axle.

The outer end of the sleeve may be closed 25 by a cap 21, having a recess 23 for the reception of the outer end of the journal 3 of the axle. The cap-plate is provided near its periphery with perforations for the reception of screws 25, which engage suitable threaded 30 sockets 26 of the sections of the check-plate to which the cap 21 is secured, the check-plate being interposed between the outer end of the sleeve and the cap. The cap conceals the outer end of the journal 3, which projects be- 35 yond the sleeve, and it is adapted to dispense with the ordinary hinged lid when it is desired to construct journal-boxes for street-cars, and by omitting the hinged lid or cover (shown in Fig. 1) and employing only the bear- 40 ing portion of the journal-box the street-space at the sides of the car will be increased and the journal-boxes will be arranged out of the way of vehicles and the notching of the steps or running-boards of summer-cars 45 will be obviated.

Instead of constructing the journal-box as just described, which is substantially the interior construction illustrated in Figs. 1 and 2, the journal-box may be shaped to conform 50 to the configuration of the ordinary form of journal-boxes in use on railway-car trucks, and it may be provided with a hinged lid or cover 27, and it may have upper recesses 5 and have an integral cylindrical bearing portion forming the sleeve 2 and constituting the 55 case for the rolls, and I desire it to be understood that these and similar changes may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention. 60

It will be seen that the journal-box is simple and comparatively inexpensive in con-

struction, that it reduces the friction to a minimum, and that the square-cut or flat 65 ends of the antifriction-rolls will prevent the latter from catching on the sectional ring or the flange at the inner end of the journal-box. It will also be apparent that the flat-ended rolls will not be displaced by an end thrust 70 of the axle and will not cut or groove the adjacent abutting surfaces like tapered, rounded, or pointed rolls and that the journal-box is capable of effectually excluding both dust and water. Furthermore, it will be clear that the 75 antifriction-rolls have a free and independent movement and are adapted to adjust themselves to the upper side of the journal of the axle and that the spacing-rings are held out of contact with the axle and the journal-box. The sectional ring, which is interlocked with 80 the axle, prevents the rolls from coming in contact with the cap or check-plate and avoids the tendency to longitudinal play, which will necessarily result when there is a space at 85 either end of the rolls.

What I claim is—

1. In a device of the class described, the combination of a journal-box having a sleeve provided at its inner end with a flange, a journal 3 having an extended portion pro- 90 vided with a groove, a sectional check-plate interlocked with the groove and arranged at the outer end of the sleeve, a cap secured to and concealing the check-plate and the extended end of the journal, the flat-ended rolls 95 arranged within the sleeve and provided between their ends with grooves, and spacing-rings engaging the grooved portions of the rolls, substantially as described.

2. In a device of the class described, the 100 combination of a journal-box having a sleeve provided at its inner end with a flange, said journal-box being also provided with a recess, a journal having an extended portion provided with a groove, a check-plate composed 105 of sections secured to the outer end of the sleeve and interlocked with the groove of the journal, a cap also secured to the outer end of the sleeve and concealing the journal and the check-plate, antifriction-rolls arranged with- 110 in the sleeve, bearing or spacing rings arranged on the rolls in grooves thereof, a collar secured in the recess of the journal-box at the inner end thereof, and provided with a recess 17, and a gasket arranged within the 115 recess 17 and adapted to exclude dust and water, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

FREDERICK G. WARD.

Witnesses:

W. K. SCAMBETT,
A. C. HERRON.