

No. 638,719.

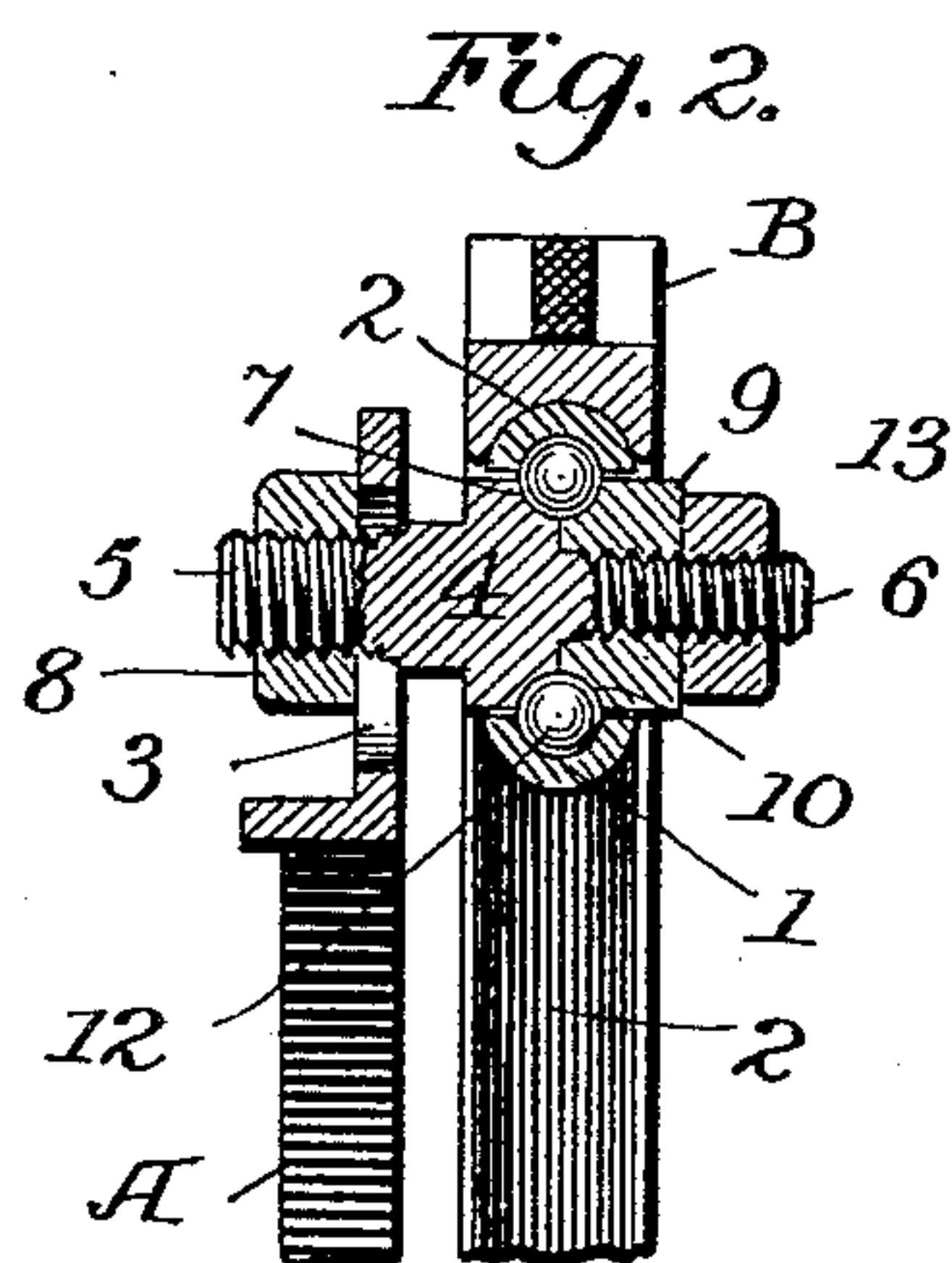
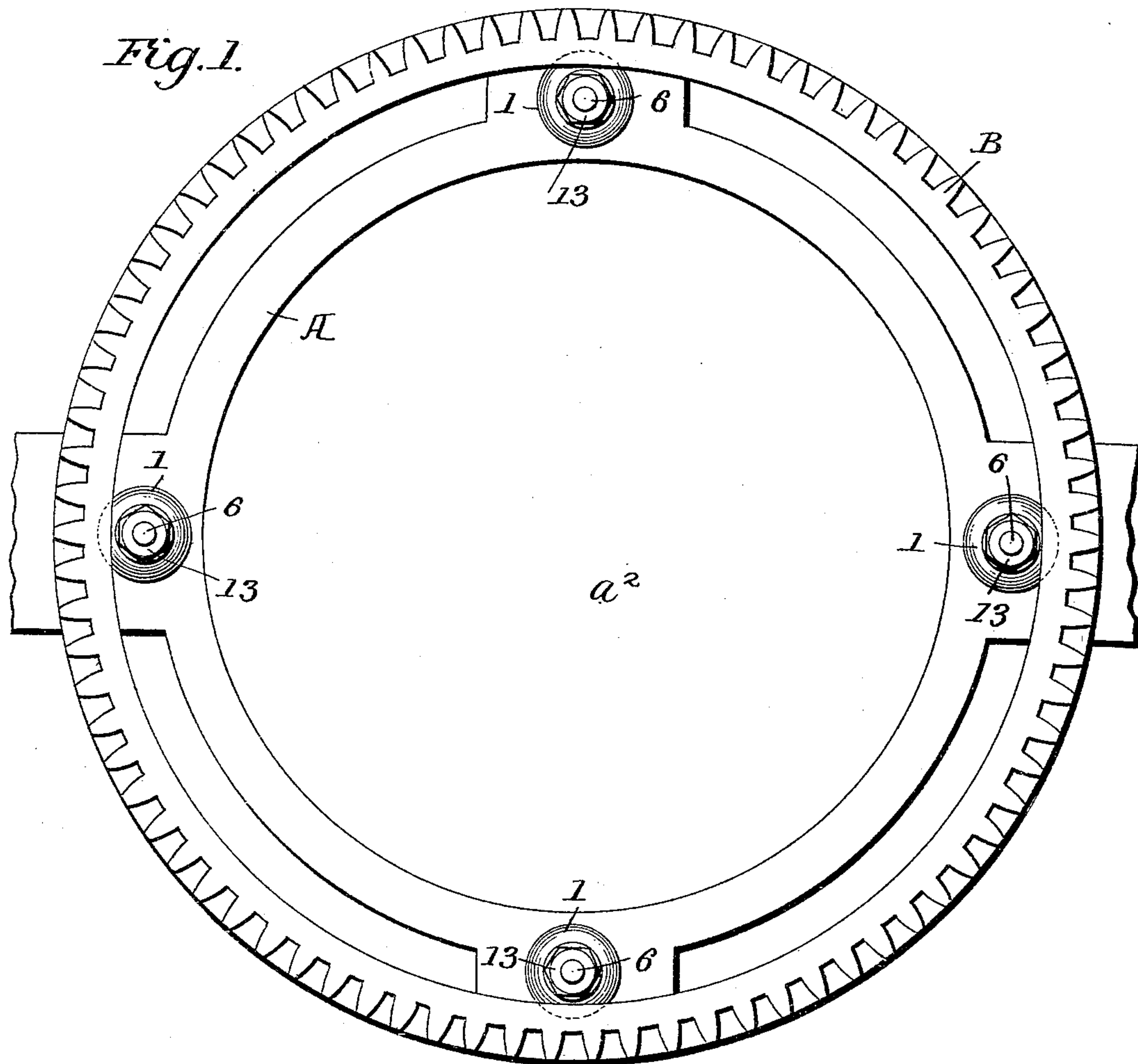
Patented Dec. 12, 1899.

F. B. HUNT.
GEARING.

(Application filed Apr. 16, 1897.)

(No Model.)

2 Sheets—Sheet 1.



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2 Sheets—Sheet 2.

Fig. 3.

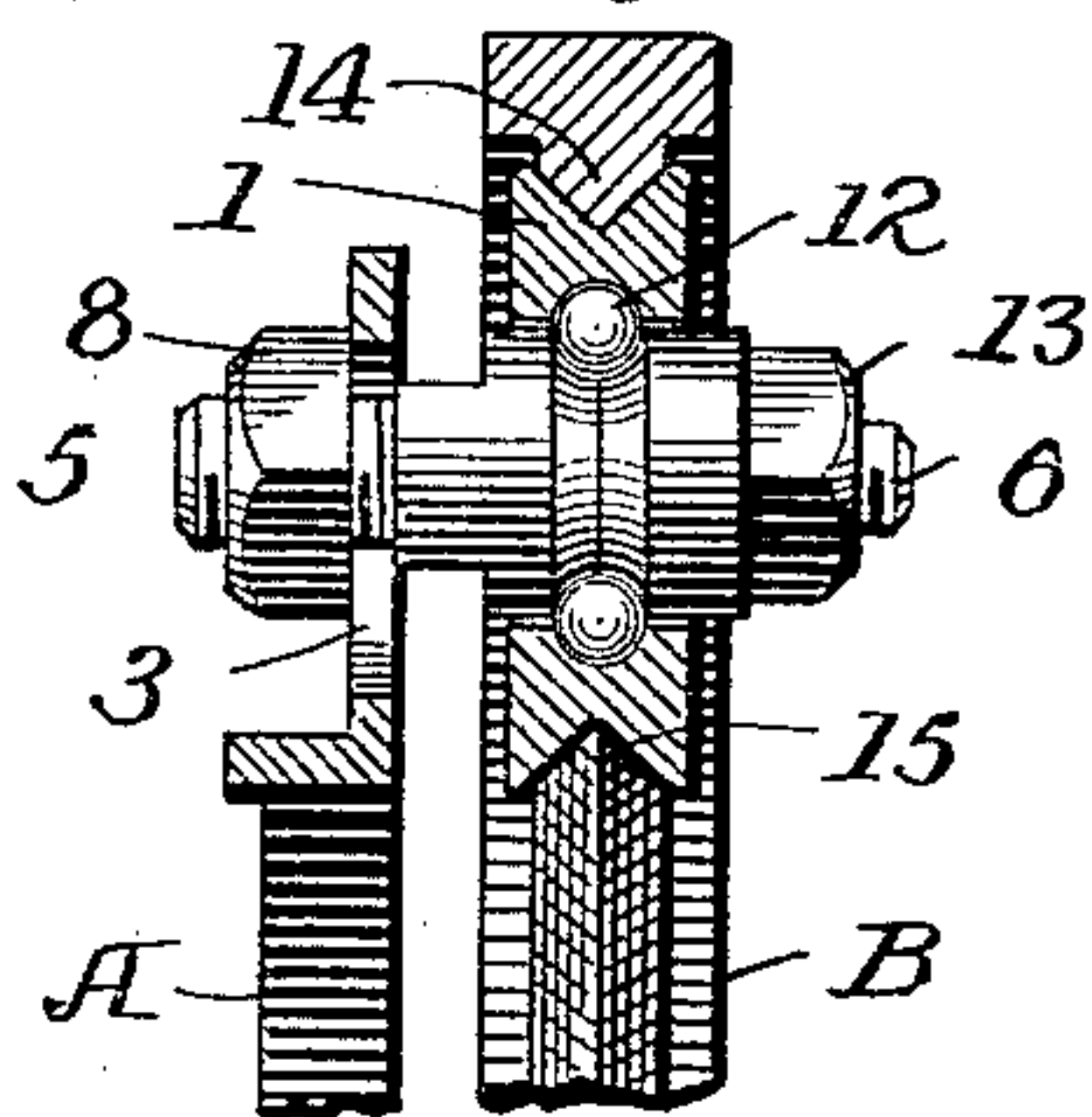


Fig. 4.

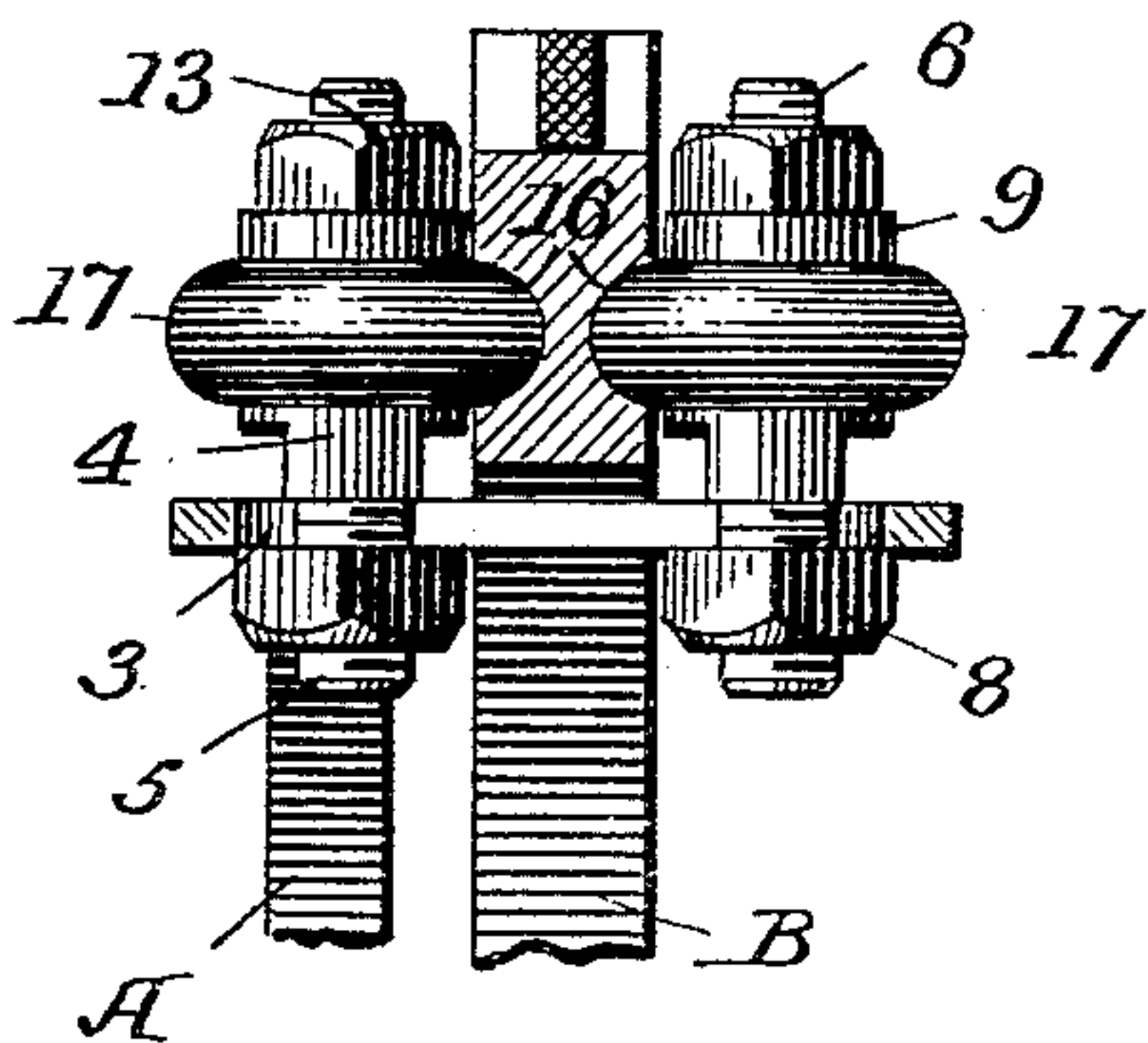


Fig. 5.

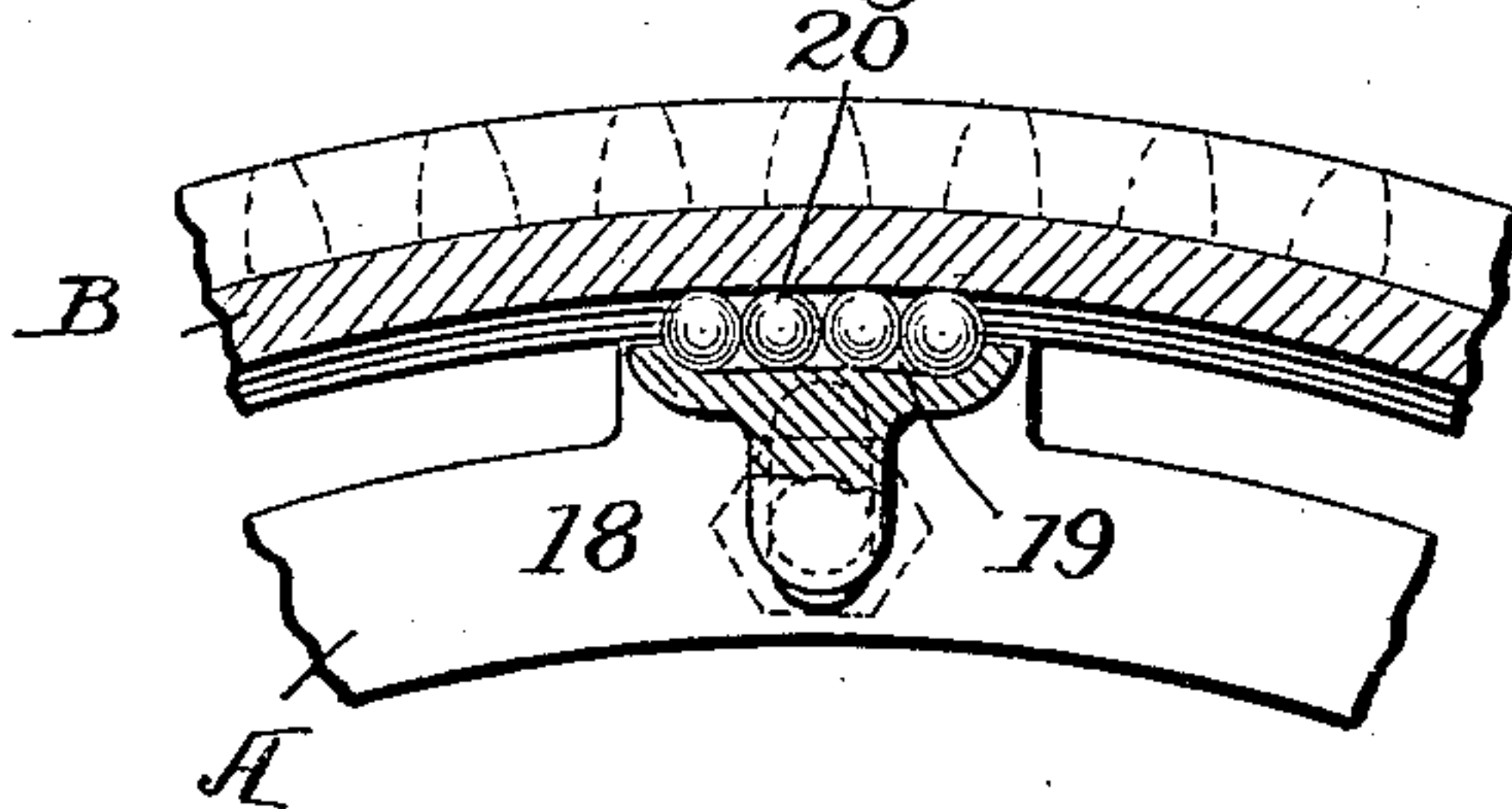


Fig. 6.

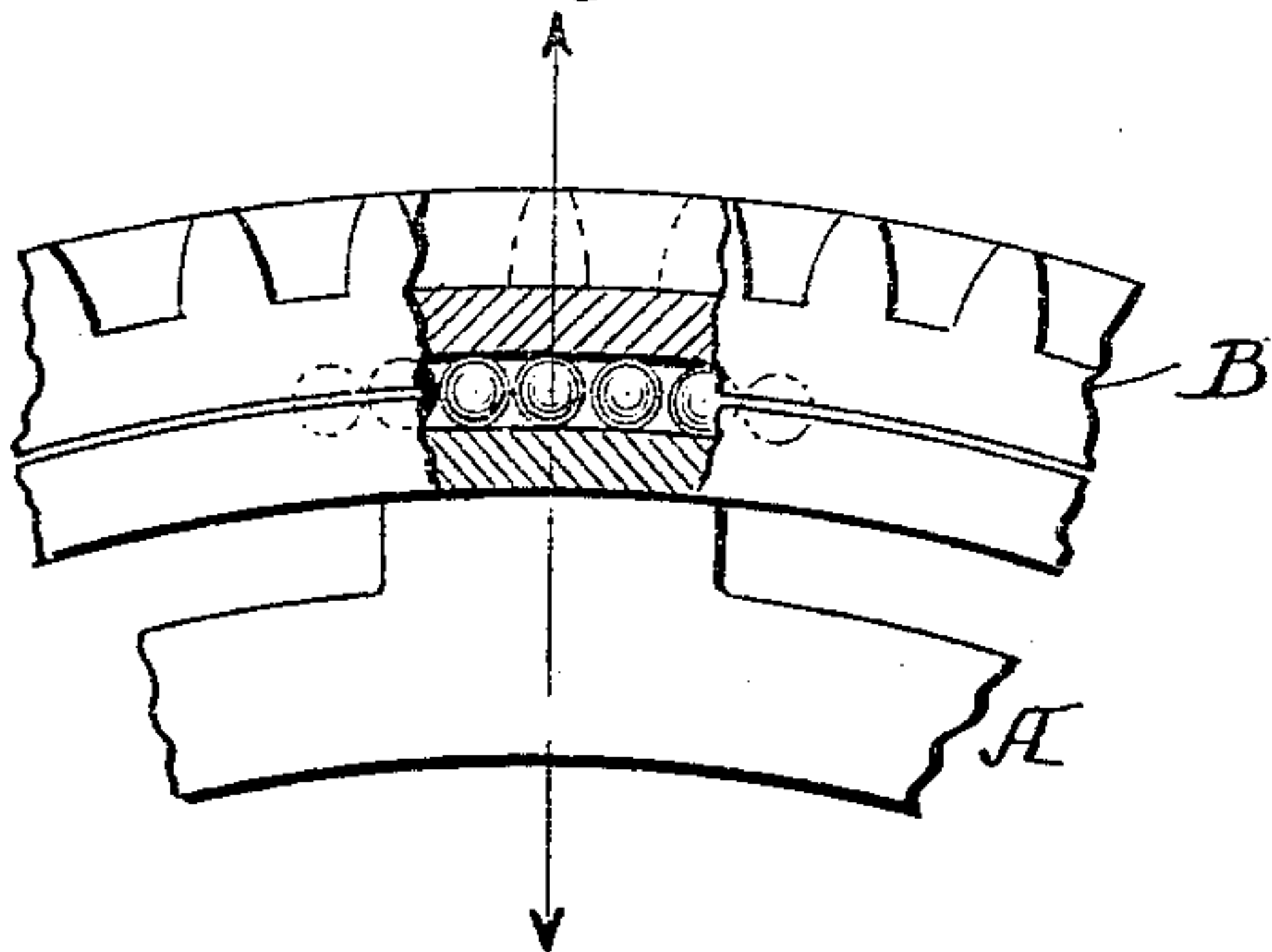
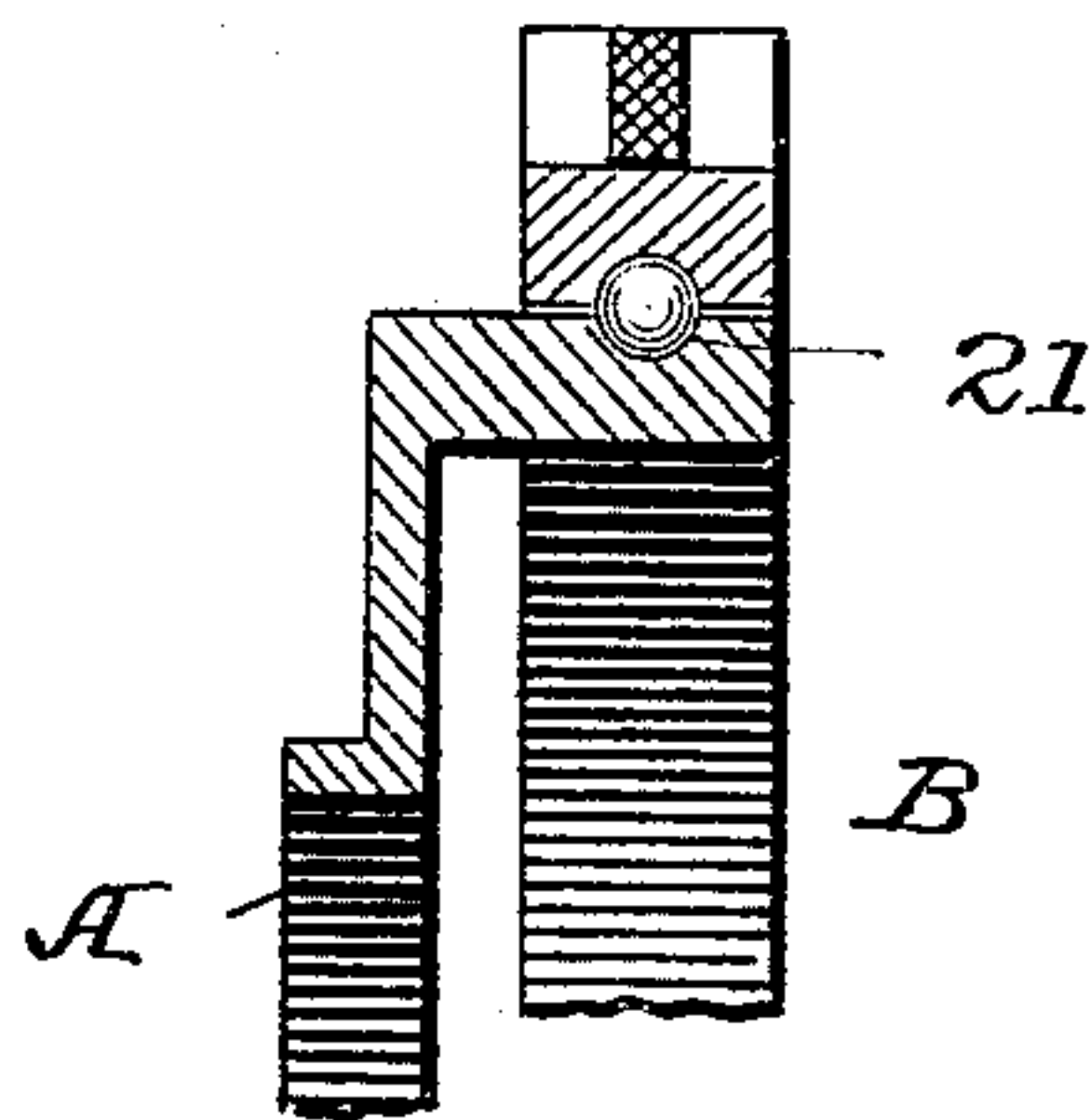


Fig. 7.



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UNITED STATES PATENT OFFICE.

FRANKLIN B. HUNT, OF WASHINGTON, DISTRICT OF COLUMBIA.

GEARING.

SPECIFICATION forming part of Letters Patent No. 638,719, dated December 12, 1899.

Application filed April 16, 1897. Serial No. 632,361. (No model.)

To all whom it may concern:

Be it known that I, FRANKLIN B. HUNT, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Gearing, of which the following is a specification.

This invention relates to certain new and useful improvements in gear or friction wheels and mountings therefor having for its object to improve generally the efficiency of such wheels and their mountings and to provide a wheel having an open center to permit a shaft, axle, or other part of a machine to extend therethrough without interfering with the rotation of the gear.

With these objects in view the invention consists in the novel construction and arrangement of the parts hereinafter more particularly described.

In the accompanying drawings, forming a part of this specification and in which like letters and numerals of reference indicate corresponding parts, Figure 1 is a side elevation of the invention. Fig. 2 is a vertical sectional view thereof. Figs. 3, 4, and 5 are similar views of modified forms of the invention. Fig. 6 is a side elevation of another modified form of the invention. Fig. 7 is a detail sectional view thereof, parts being broken away.

Referring more particularly to the drawings, A designates a suitable frame or support provided with one or more openings, a single central opening a^2 being shown.

B is the friction or gear wheel, which is in the form of a ring and is provided upon its periphery or outer face with teeth of the desired form. This ring may be of any desired width and of any suitable material or composition of materials best suited to the purpose for which the gear is intended. Preferably the ring B is supported at its inner face by means of one or more suitable bearings or by means of friction-rollers 1. As shown, the friction-rollers are supported in a circular plane at equidistant points upon the frame A, and their peripheries are curved or V-shaped in cross-section to enter a correspondingly-shaped annular groove 2, formed in the inner face of the gear-ring. In the construction illustrated in the drawings four friction-wheels are employed, which are arranged in

such manner as to prevent bodily radial movement of the gear-ring with respect to the axis of any one of said rollers, and by reason of the peripheries of the friction-rollers entering the internal groove of the ring all lateral movement of the ring is prevented. The rollers 1 are radially adjustable upon the frame in order to compensate for any looseness occasioned by the wear of any of the parts.

As shown, the frame A is provided with radial slots 3, each adapted to a flat-sided block 4, provided upon its opposite faces with threaded projections or extensions 5 6, respectively, and on its outer face at the edge thereof with a concave channel 7. The projection 5 extends upon one side of the frame A and is adapted to be engaged by a nut 8, which maintains the block 4 in engagement with and against longitudinal movement within its slot, while the projection 6 extends upon the opposite side of the frame and is engaged by an internally-threaded collar 9. This collar is adjustable upon the extension 6 toward and away from the outer channeled face of the block 4 and is itself provided in its inner face with a concave groove 10, which coincides with the corresponding groove in the block to form an annular channel for the reception of a series of balls or rollers 12. These balls form a bearing for the friction-roller 1, which is mounted upon and provided with an internal groove for the reception of the balls. The collar 9 is maintained against turning upon the extension 6 by means of a jam-nut 13, which engages the outer end of the extension and bears upon the outer face of said collar.

From the above it will be obvious that a gear is provided which is adapted to rotate with a minimum amount of friction, and through which gear any working part of a machine may extend and operate without affecting the rotation of the gear, thereby permitting the parts of a machine, especially one in which gears of large diameters are employed, to be compactly arranged and likewise resulting in a great saving of space.

In the modified form of the invention illustrated in Fig. 3 of the drawings the teeth on the periphery of the gear are omitted, an adjacent gear being rotated by frictional contact with the plain face of the gear. Instead, too, of forming the gear-ring with an internal

groove it is provided with an annular V-shaped rib 14, which is received into correspondingly-shaped grooves 15 in the friction-rollers.

5 As shown in Fig. 4, the gear-ring is provided with an annular groove 16 in each of its sides for the reception of horizontally-arranged friction-rollers 17, carried upon the adjustable block 4.

10 In the construction illustrated in Fig. 5 the friction-rollers are dispensed with and instead the adjustable block is provided with an extension 18, having segmental groove 19, the ends of which are closed, and this groove contains a series of balls 20, which enter the internal groove of the gear-ring.

15 In the modified form of invention shown in Figs. 6 and 7 the frame A is provided with an annular exteriorly-channelled bearing 21, which extends into the gear-ring and substantially corresponds in diameter with the internal diameter of the ring. The internal channel of the said ring and the exterior channel of the bearing 21 coincide, and within 25 the space formed by said channels a series of balls are disposed, upon which the gear-ring bears.

Without limiting myself to the exact construction and arrangement of parts shown 30 and described, what I claim is—

1. The combination with a ring having outer peripheral engaging parts, of a circular frame of less diameter than said ring located within the latter, and leaving an open central portion, and a series of rollers each of which is 35 confined to merely rotate and bear on the inner

ner part of said ring and the outer part of said frame, whereby the only movement of said ring and frame relative to each other is of rotation, substantially as described. 40

2. The combination with a ring having outer peripheral engaging parts, of a circular frame of less diameter than said ring located within the latter and leaving an open central portion, and a series of radially-adjustable rollers each of which is confined to merely rotate, 45 and bears on the inner part of said ring and the outer part of said frame, substantially as described.

3. The combination with a ring having outer peripheral parts, of a circular frame of less diameter than said ring located within the latter and leaving an open central portion, and a series of rollers supported on one of 50 said circular members and bearing in grooves in the contiguous portion of the other of said circular members, substantially as described.

4. The combination with a ring having outer peripheral parts, of a circular frame of less diameter than said ring located within the 60 latter and leaving an open central portion, and a series of rollers supported on ball-bearings on said frame, and bearing in a groove in said ring, substantially as described.

In testimony whereof I have signed my 65 name to this specification in the presence of two subscribing witnesses.

FRANKLIN B. HUNT.

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