

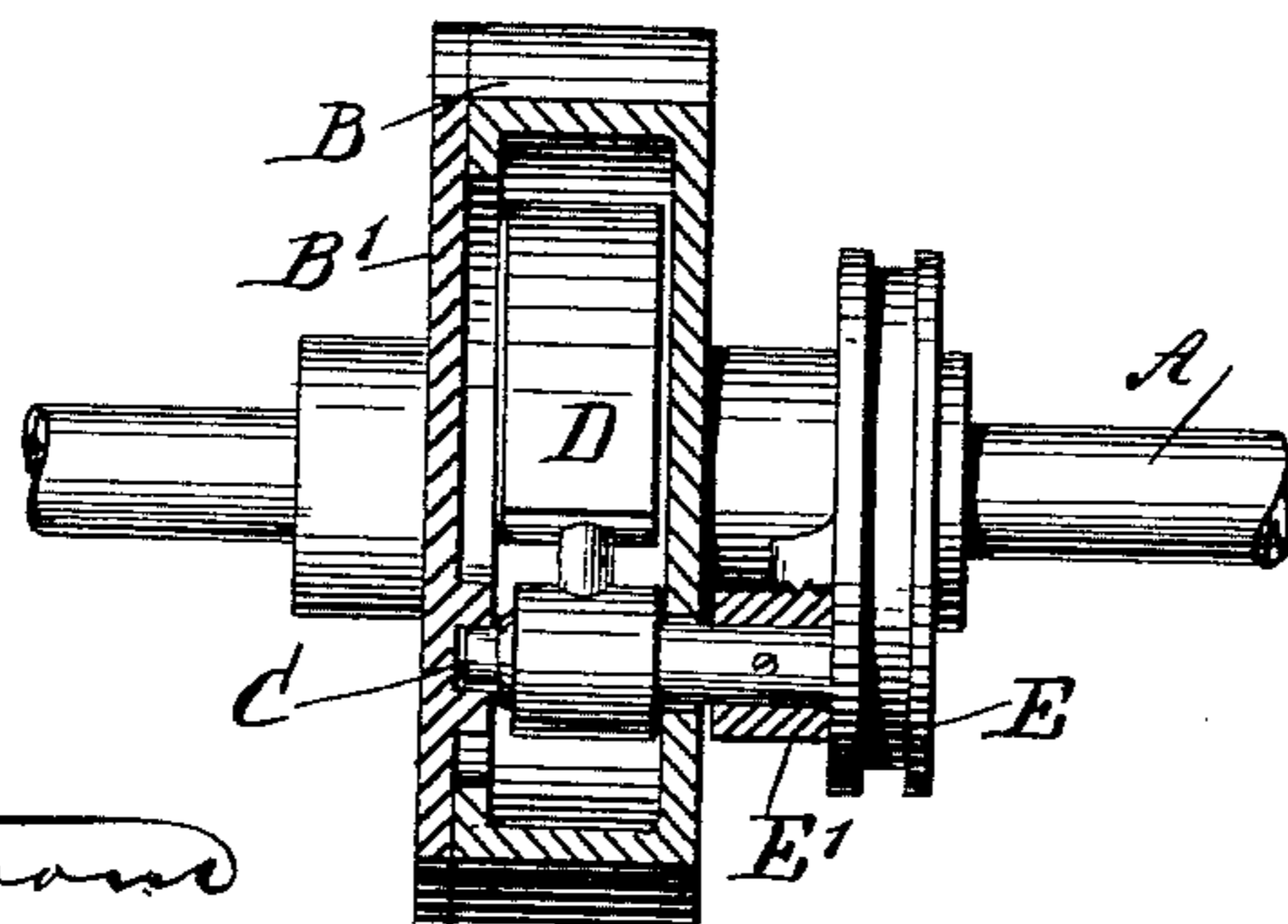
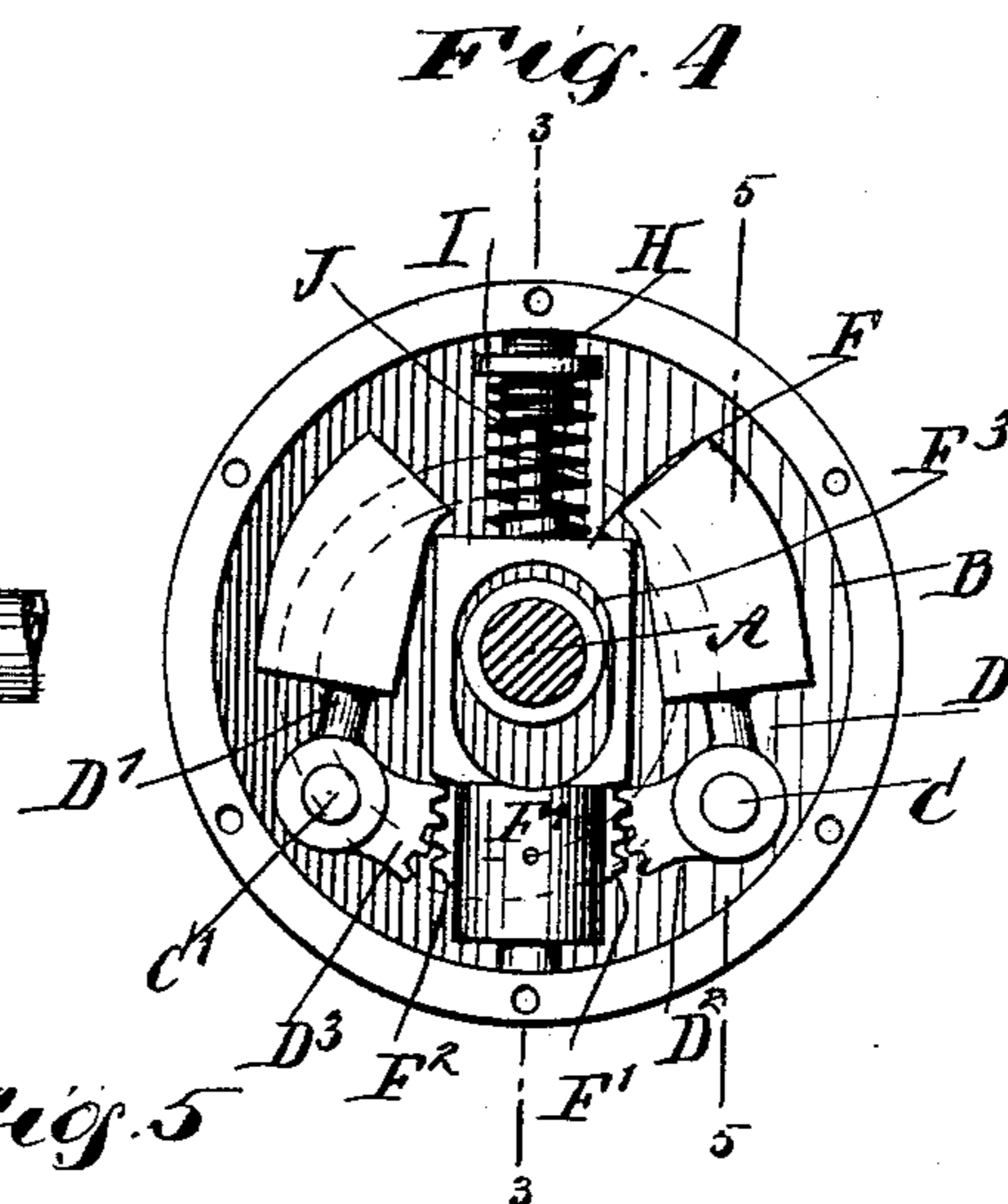
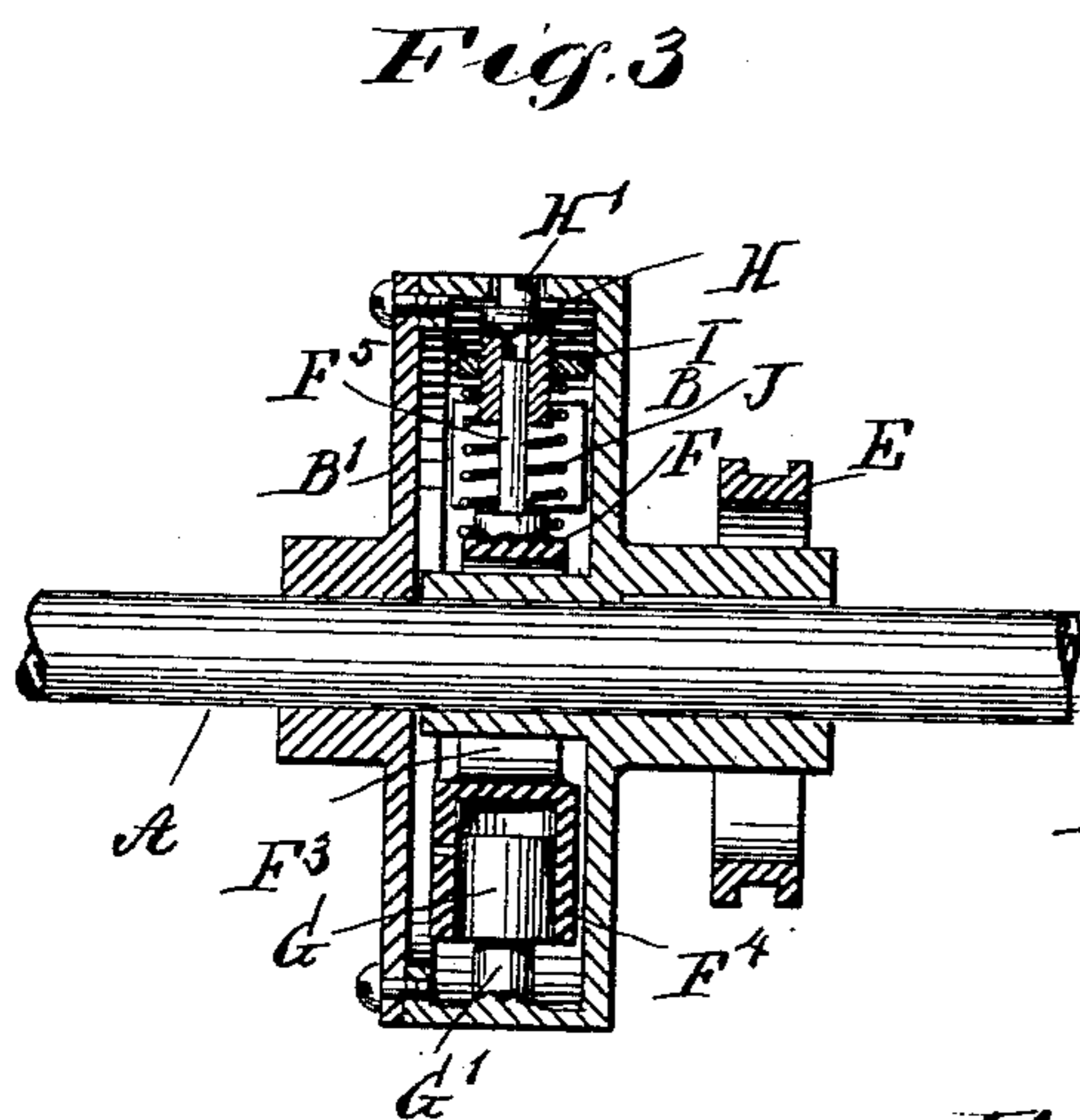
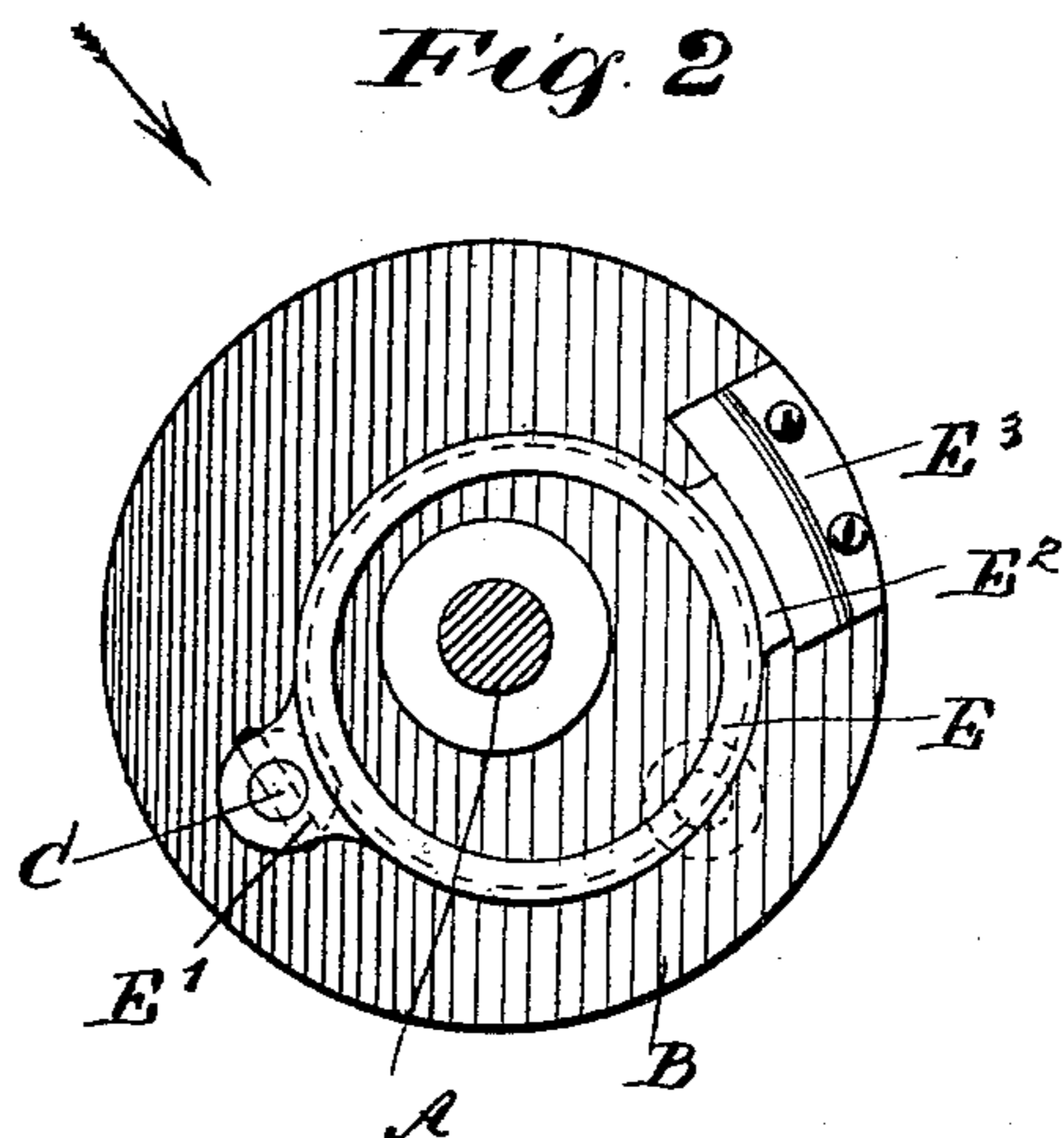
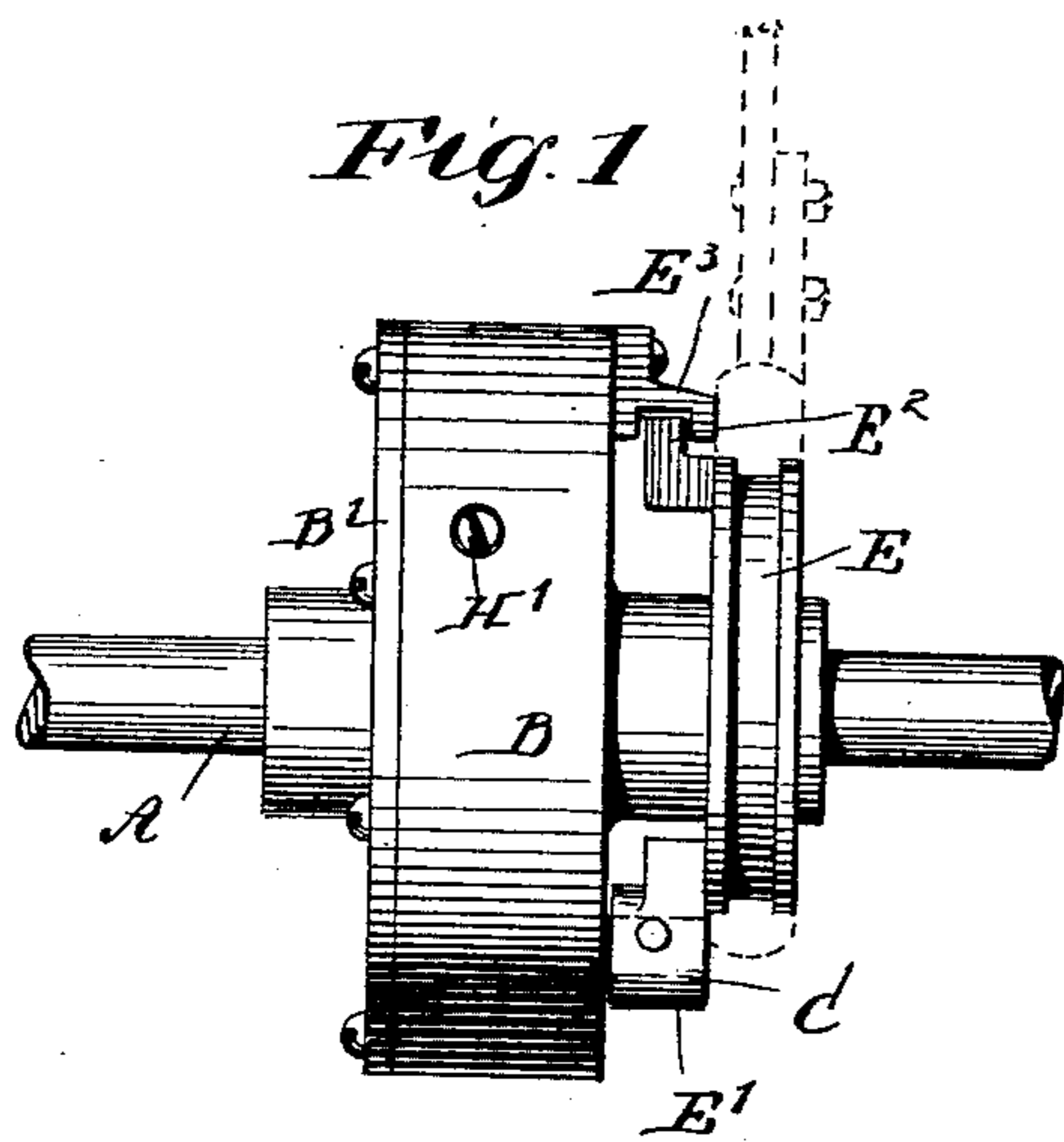
No. 616,399.

Patented Dec. 20, 1898.

W. E. BROWN.
GOVERNOR.

(Application filed Dec. 8, 1897.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

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GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 616,399, dated December 20, 1898.

Application filed December 8, 1897. Serial No. 661,164. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. BROWN, of Aral, in the county of Benzie and State of Michigan, have invented a new and Improved Governor, of which the following is a full, clear, and exact description.

The invention relates to shaft-governors for controlling the slide-valve of an engine; and its object is to provide a new and improved governor which is very sensitive, is adapted to insure an accurate or close regulation of the valve-gear, according to the load, prevent the engine from racing, and is not liable to get out of order.

The invention consists of novel features and parts and combinations of the same, as will be hereinafter more fully described, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the improvement. Fig. 2 is a face view of the same. Fig. 3 is a sectional side elevation of the same on the line 3 3 of Fig. 4. Fig. 4 is a face view of the same with the cover removed, and Fig. 5 is a sectional side elevation of the improvement on the line 5 5 of Fig. 4.

On the engine-shaft A is secured a casing B, provided with a removable cover B' and containing bearings for pivots C C', carrying weighted arms D D', respectively mounted to swing within the casing at a right angle to the shaft A. The pivot C extends to the outside of the casing B and is rigidly connected at its outer end to a lug E', forming part of an eccentric E, formed with a central opening, through which passes the shaft A, to allow the said eccentric to swing across the shaft to increase or diminish its throw, and consequently increase or diminish the throw of the valve with which the eccentric E is connected.

On the eccentric E, directly opposite the lug E', is formed a guide-lug E², fitted to slide in a suitable guideway E³, attached to the casing B.

On the fulcrum ends of the arms D D' are formed segmental gear-wheels D² D³, in mesh with racks F' F², respectively, formed on opposite sides of a slide F, fitted to slide dia-

metrically within the casing B, the said slide having an aperture F³ for the passage of the shaft A. (See Fig. 4.) One end of the slide F is formed into a cylinder F⁴, engaged by a piston G, having its piston-rod G' rigidly attached or formed on the rim of the casing B. (See Fig. 3.) The other end of the slide F is reduced to form a stem F⁵, fitted to slide in a screw-rod H, having its head H' extending loosely through an aperture in the rim of the casing B to allow the operator to turn the said rod from the outside of the casing by engaging a screw-driver with the slot in the head H'.

On the screw-rod H turns a nut I, one end of which rests against the flat inner face of the casing B, so that when the screw-rod H is turned the nut I moves inward or outward on the said screw-rod to regulate the tension of a spring J, one end of which rests against the slide F, the other end resting against the nut I.

Now when the engine is at work then the rotary motion of the shaft A and of the casing B causes the weighted arms D D' to swing outward by centrifugal force, and in doing so the arm D, as its pivot C is rigidly connected with the eccentric E, causes the latter to swing across the shaft A, so as to give more or less throw to the eccentric, and consequently to the valve-gear connected with the eccentric.

When the arms D D' swing outward, their segmental gear-wheels D² D³, in mesh with the racks F' F², cause the slide F to move diametrically against the tension of the spring J, so that when the speed of the engine decreases the said spring J causes a return of the slide F and a consequent inward-swinging movement of the weighted arms D D' to move the eccentric E correspondingly after opening the valve-gear more fully to allow more steam to pass to the cylinder and insure a normal speed of the engine. When the engine runs too fast, the weighted arms swing outward to such an extent that the eccentric E again causes a cut-off of the valves to reduce the speed of the engine until a normal speed is reached.

Now it will be seen that the device is very simple and durable in construction, is not liable to get out of order, and as the several parts are completely inclosed within a dust-

proof casing it is evident that the governor will work with the greatest nicety without undue friction.

As the tension of the spring J can be regulated, the operator is enabled to set the governor to a desired normal speed, it being understood that any fluctuation, either an increase or decrease, affects the governor, and the latter consequently regulates the valve mechanism to insure a proper admission of steam to the cylinder and a uniform speed of the engine controlled by said governor.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A governor provided with a casing adapted to be secured on a shaft, a slide fitted to slide in the said casing, a spring pressing on the said slide, means for regulating the tension of the said spring, and weighted arms fulcrumed in the said casing, and having segmental gear-wheels in mesh with racks on the said slide, an eccentric operated by said arm,

to swing across the shaft, substantially as shown and described.

2. The combination of the shaft, the casing or support mounted to rotate therewith, the weighted arms fulcrumed on said support, the eccentric carried by the pivot of one of said arms, and the eccentric-guide secured to said support on the opposite side of the shaft to the pivot and concentric with said pivot.

3. The combination of the shaft, the casing or support mounted to rotate therewith, the weighted arms fulcrumed on said support, the eccentric operated by said arms, the spring-pressed slide formed with a cylinder having racks at opposite sides, a piston secured to the support and engaging said cylinder, and segmental gears on the weighted arms and engaging said racks.

WILLIAM E. BROWN.

Witnesses:

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