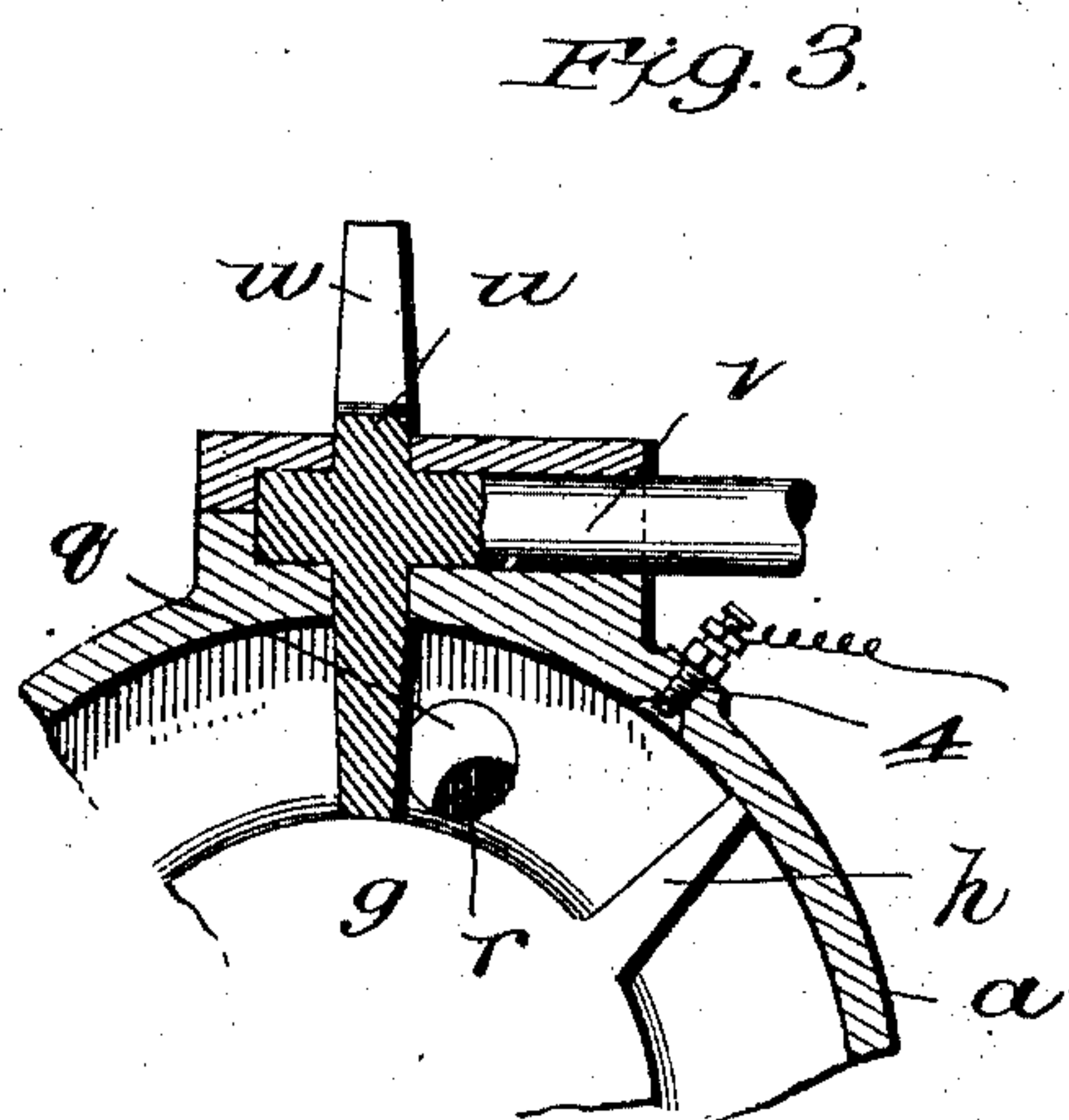
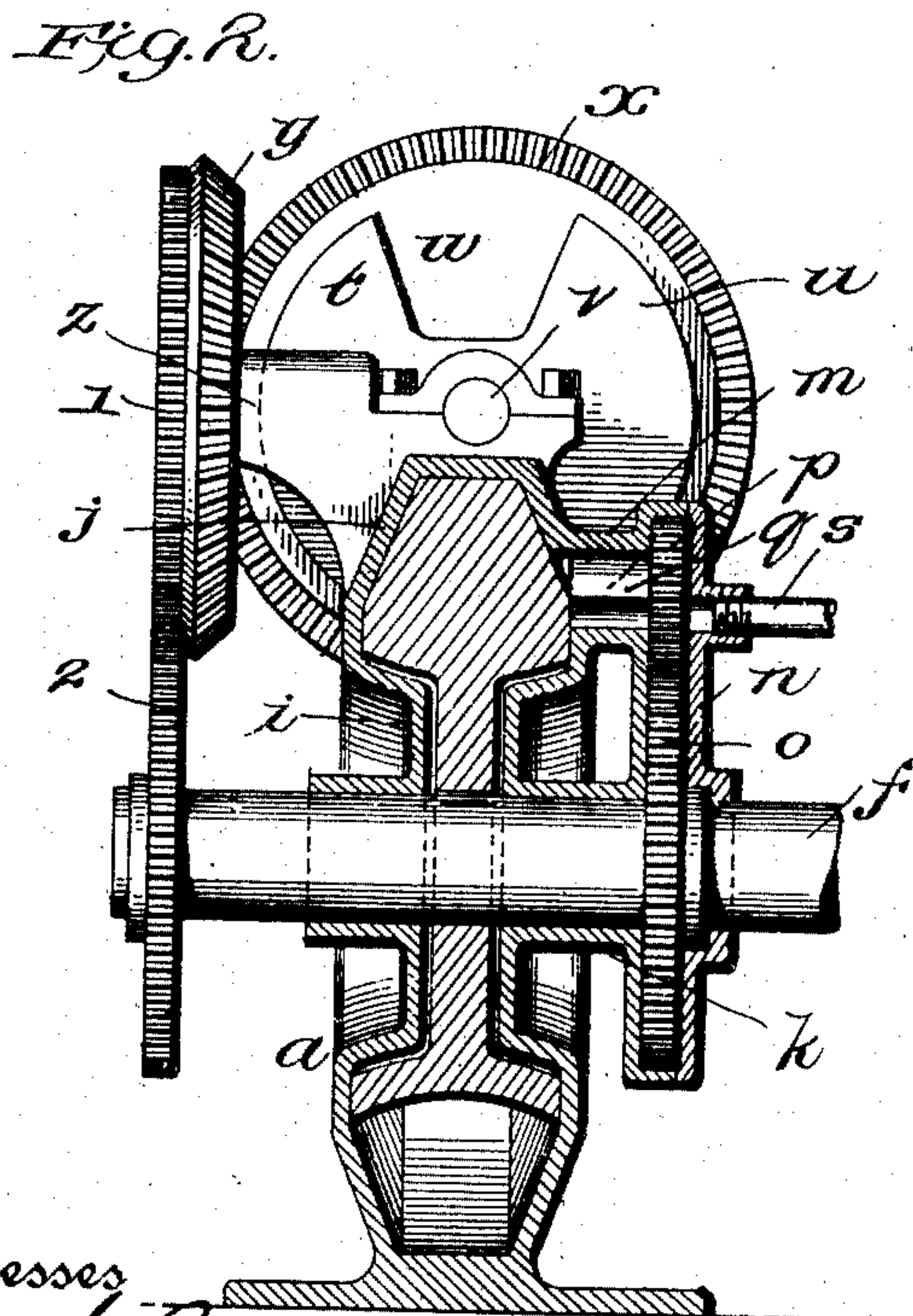
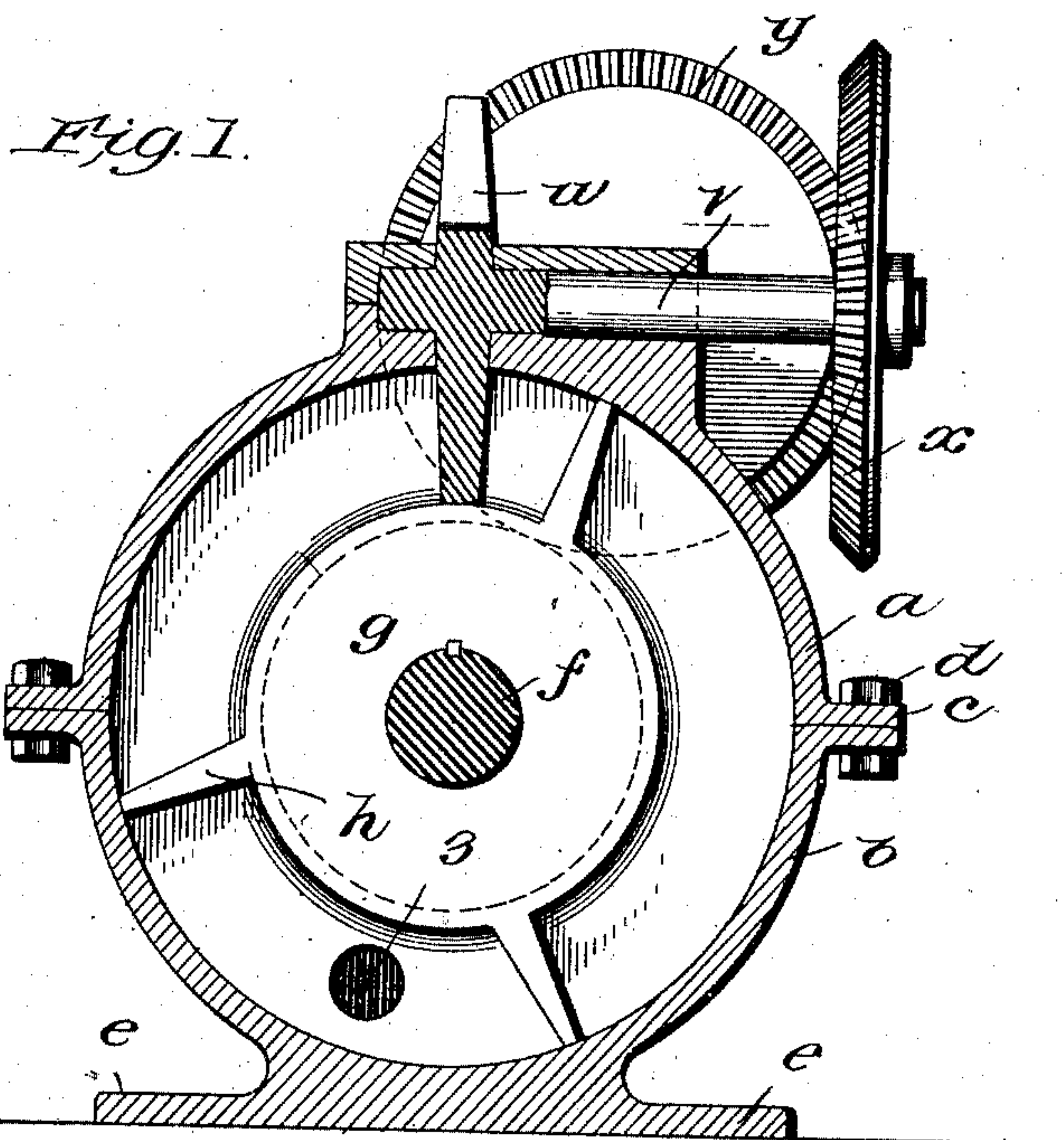


L. L. DRIGGS.
ROTARY ENGINE.

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928,506.

Patented July 20, 1909.



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UNITED STATES PATENT OFFICE.

LOUIS LABADIE DRIGGS, OF SHARON, PENNSYLVANIA.

ROTARY ENGINE.

No. 928,506.

Specification of Letters Patent.

Patented July 20, 1909.

Application filed June 26, 1908. Serial No. 440,549.

To all whom it may concern:

Be it known that I, LOUIS LABADIE DRIGGS, a citizen of the United States, residing at Sharon, in the county of Mercer and State of Pennsylvania, have invented certain new and useful Improvements in Rotary Engines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in rotary engines of either the expansion or explosive type.

The object of my invention is to provide an engine of simple construction in which, when the engine is in operation, the pistons and the abutments revolve in planes at right angles to each other.

With this object in view, my invention consists in the construction and combinations of parts as hereinafter described and claimed.

In the accompanying drawing—Figure 1 is a vertical cross section through my improved engine, parts being shown in elevation. Fig. 2 is a longitudinal section taken at right angles to the plane of the section of Fig. 1, parts being shown in elevation. Fig. 3 is a partial sectional view of a modification.

The casing of the engine is composed of two semi-circular sections *a* and *b*, provided with flanges *c*, the sections being united together by bolts *d*. The lower section *b* is provided with an expanded base *e*. Mounted centrally within the casing, and adapted to revolve freely therein, is a shaft *f*, and keyed to this shaft is a disk *g*, provided with a plurality of pistons *h*, three being shown in the figure, arranged 120° apart. The casing is of the peculiar form shown in Fig. 2, namely, with a reduced portion *i* within which the disk *g* works, and an expanded portion *j* within which the pistons work, said pistons being preferably of the peculiar shape shown in Fig. 2. These pistons are preferably thickest at the base, as shown in Fig. 1.

The casing is provided with a central extension *k* and an extension *m* near the periphery thereof, the two extensions being united by a supplemental casing *n*. I have shown all these parts as continuous, but of course in making the same, they will be made in separate portions fitted together.

On the shaft *f* and within the casing *n*, is mounted a gear wheel *o*, which meshes with a gear wheel *p* within an enlargement of the casing *n*. The gear wheel *p* is carried on a short stub shaft *q*, which is cut away as shown at *r*.

s represents a steam pipe which enters the casing *n* outside of the gear wheel *p* and eccentrically to said wheel and the stub shaft *q*.

Obviously when the engine is running, the gear wheel *p* will be constantly rotated, and by means of the construction described will admit steam at regular intervals into the main casing.

The main casing is slotted at the top, and through this slot is arranged to revolve, at right angles to the direction of revolution of the disk *g*, the movable abutments. These abutments *t* and *u* are mounted on a shaft *v* and oppositely arranged, leaving spaces such as *w* between them. The shaft *v* is provided with a beveled gear wheel *x*, which meshes with a beveled gear wheel *y* on a stub shaft mounted in the bracket *z*, carried on the main casing. On the same shaft with the beveled gear wheel *y* is mounted a spur gear wheel 1, which meshes with a spur gear wheel 2, keyed to the shaft *f* and obviously the rotation of the shaft *f* will cause the rotation of the abutment shaft *v* and of the valve gear wheel *p*. The parts are so proportioned and arranged that when one of the pistons *h* is at its highest point, it will be allowed to pass through one of the spaces *w*, and immediately thereafter, as, for example, when the parts are in the position shown in Fig. 1, one of the abutments will be in such a position as to close the top opening in the main casing. The main casing is provided with an escape port 3, located in a suitable position.

The operation of the engine as shown in Figs. 1 and 2 is as follows:—The parts being in the position shown in Fig. 1, steam is admitted through the opening *r* between one of the abutments and one of the pistons. By its expansion, the steam forces the disk *g*, carrying the pistons *h*, clockwise. The admission of steam is gradually cut off by the rotation of the valve gear wheel *p*, the shaft carrying the valve wheel and the movable abutments all being rotated in timed movements with the main shaft.

In Fig. 3 a modification is shown, in which instead of steam, an explosive mixture is

used. This explosive mixture is contained in a compressor, not shown, and is delivered into the main casing just as the steam was, the only difference in the two constructions being the provision of an igniting device 4, which is timed so as to ignite the charge when the valve wheel has cut off the connection between the source of compressed gas and the interior of the casing.

10 Having thus described my invention, I claim:—

1. In a rotary engine, the combination of a casing provided with inlet and exhaust ports and with a slot, a secondary casing 15 connected therewith, a shaft provided with pistons revolubly mounted in said first named casing, a shaft provided with abutments adapted to revolve through the slot in the main casing at a plane at right angles to the plane of revolution of the pistons there- 20 in, a pipe for supplying motor fluid to said main casing, and a stub shaft rotated by the action of the piston-carrying shaft and provided with a cut away portion through 25 which the motor fluid is admitted into the

main casing at intervals, substantially as described.

2. In a rotary engine, the combination of a main casing provided with a slot and with inlet and exhaust ports, a shaft, provided 30 with pistons, revolubly mounted in said casing, a second shaft arranged at right angles to said first named shaft and provided with abutments arranged to revolve through said slot in a plane at right angles to the plane 35 of revolution of the pistons, a secondary casing connected with said first named casing, a pipe for supplying motor fluid to said second named casing, a stub shaft, having a cut away portion, adapted at times to register 40 with said pipe, and gearing connecting the main shaft with the stub shaft and the shaft which carries the movable abutments, substantially as described.

In testimony whereof, I affix my signature, in presence of two witnesses. 45

LOUIS LABADIE DRIGGS.

Witnesses:

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