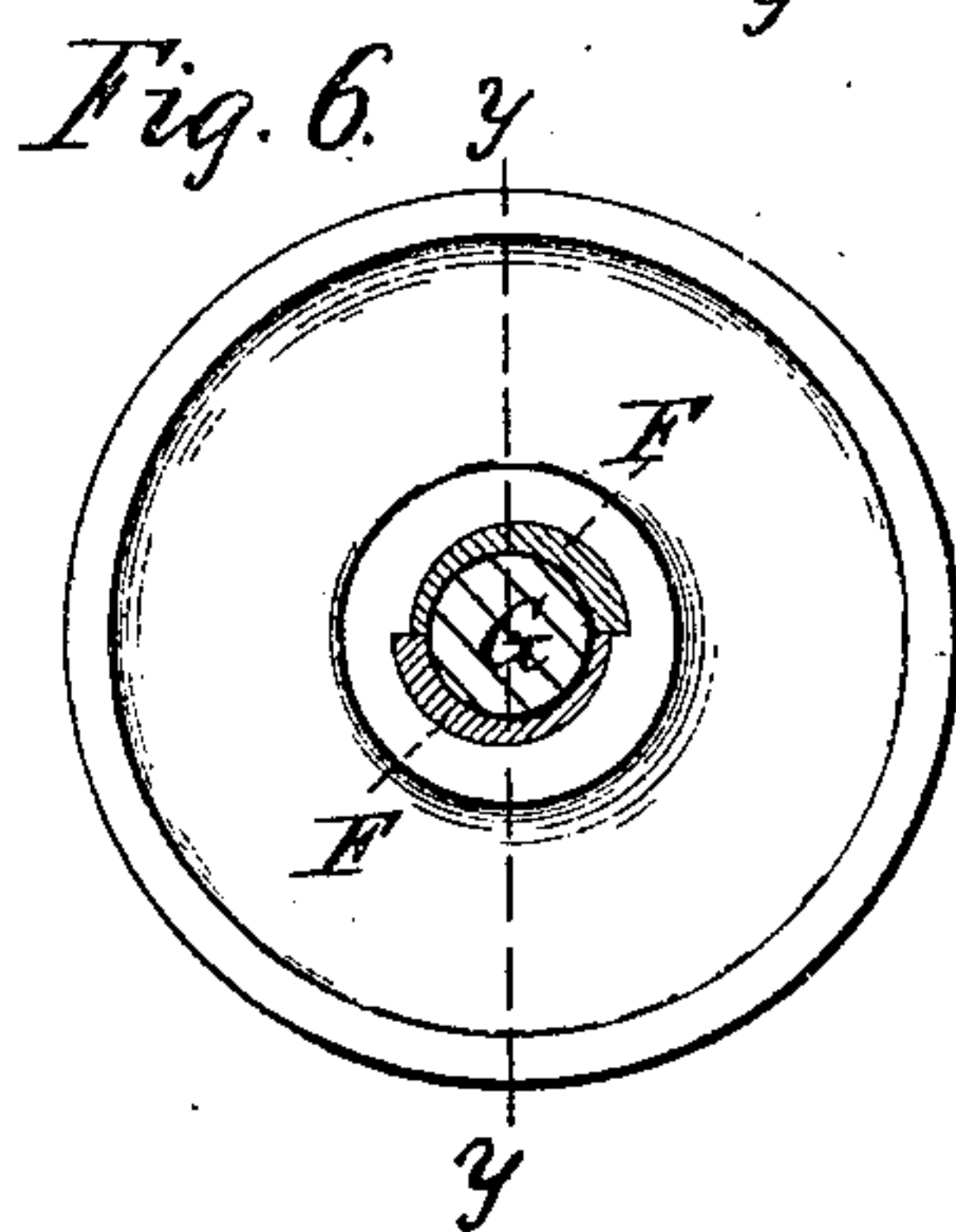
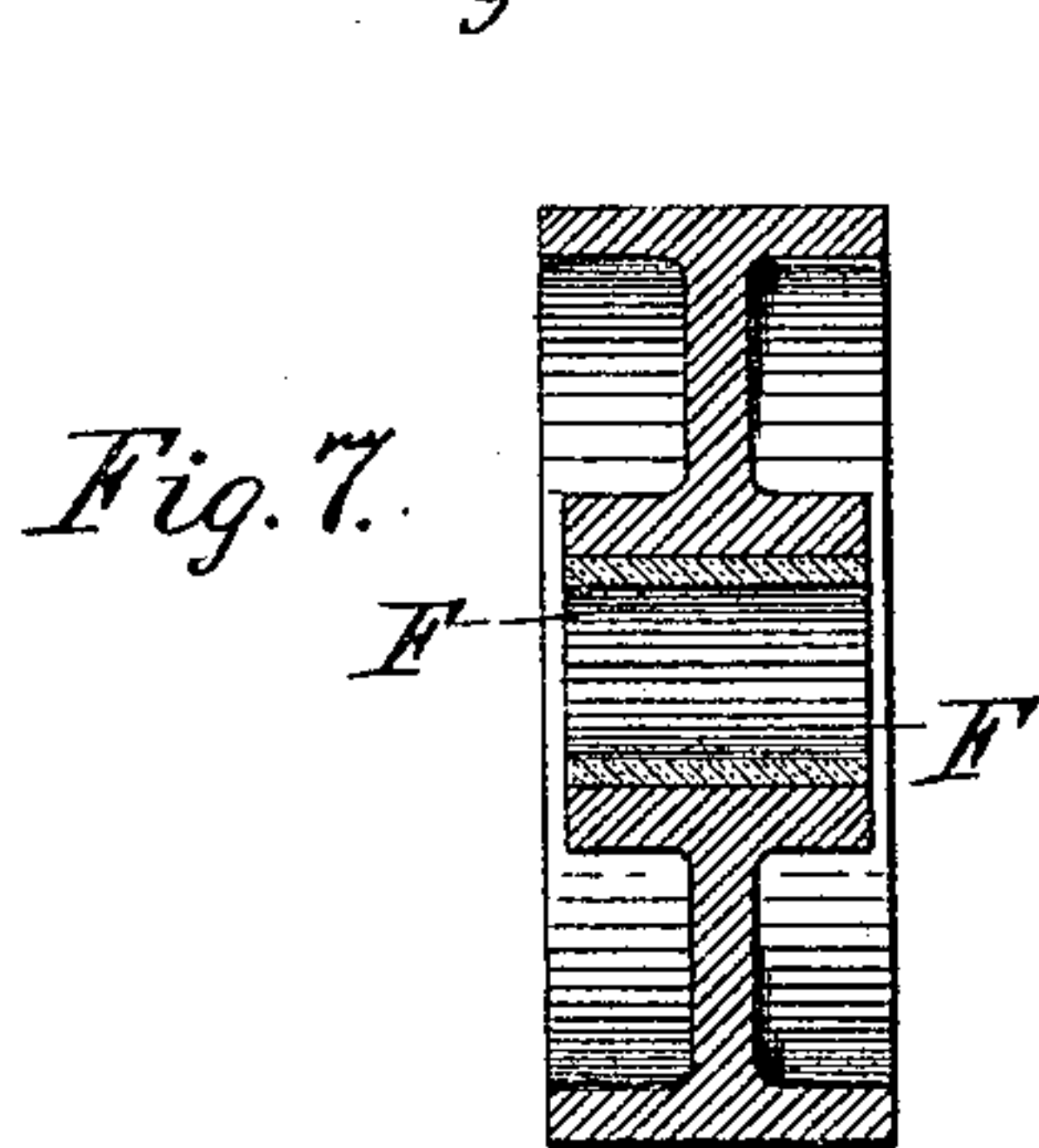
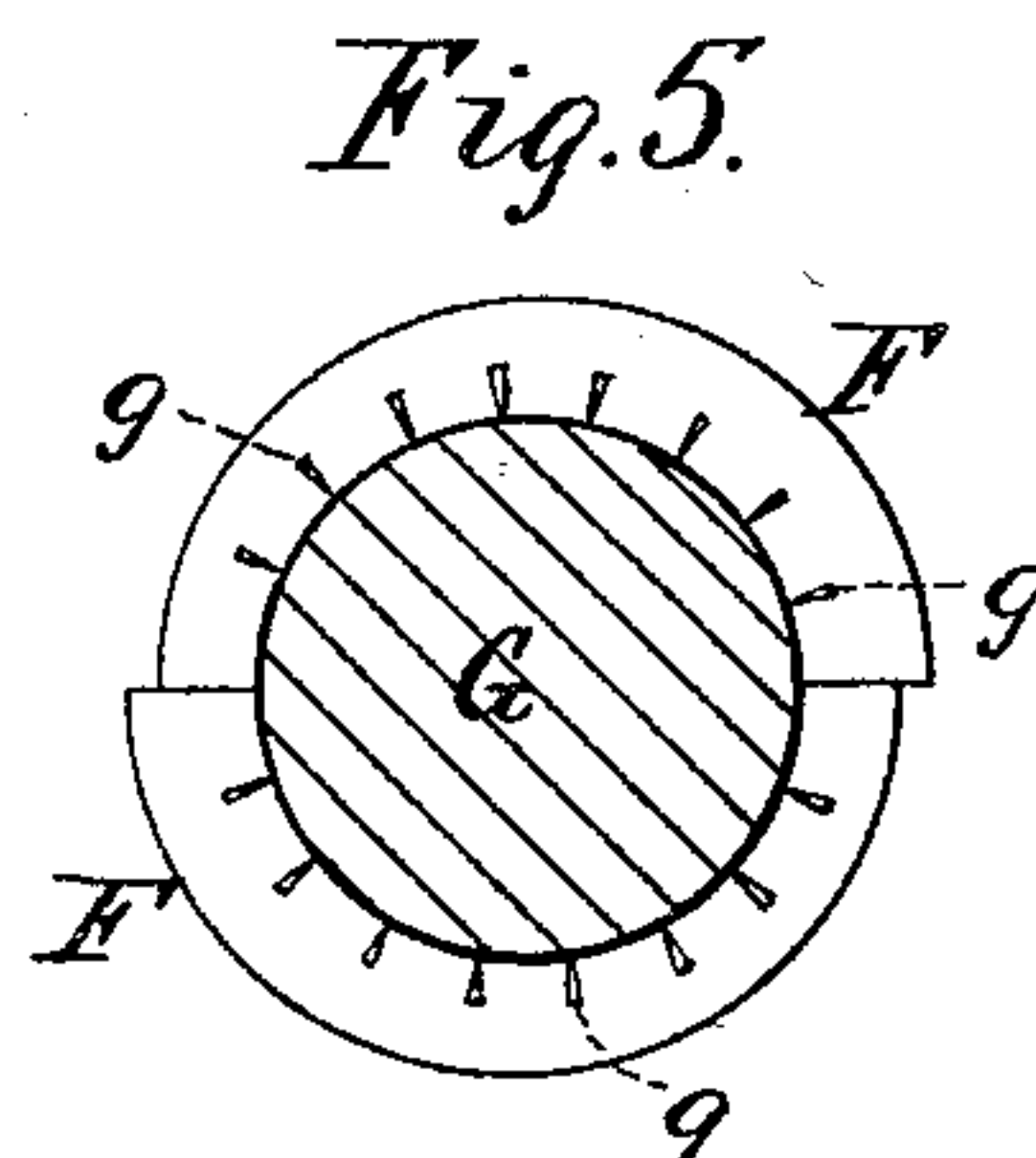
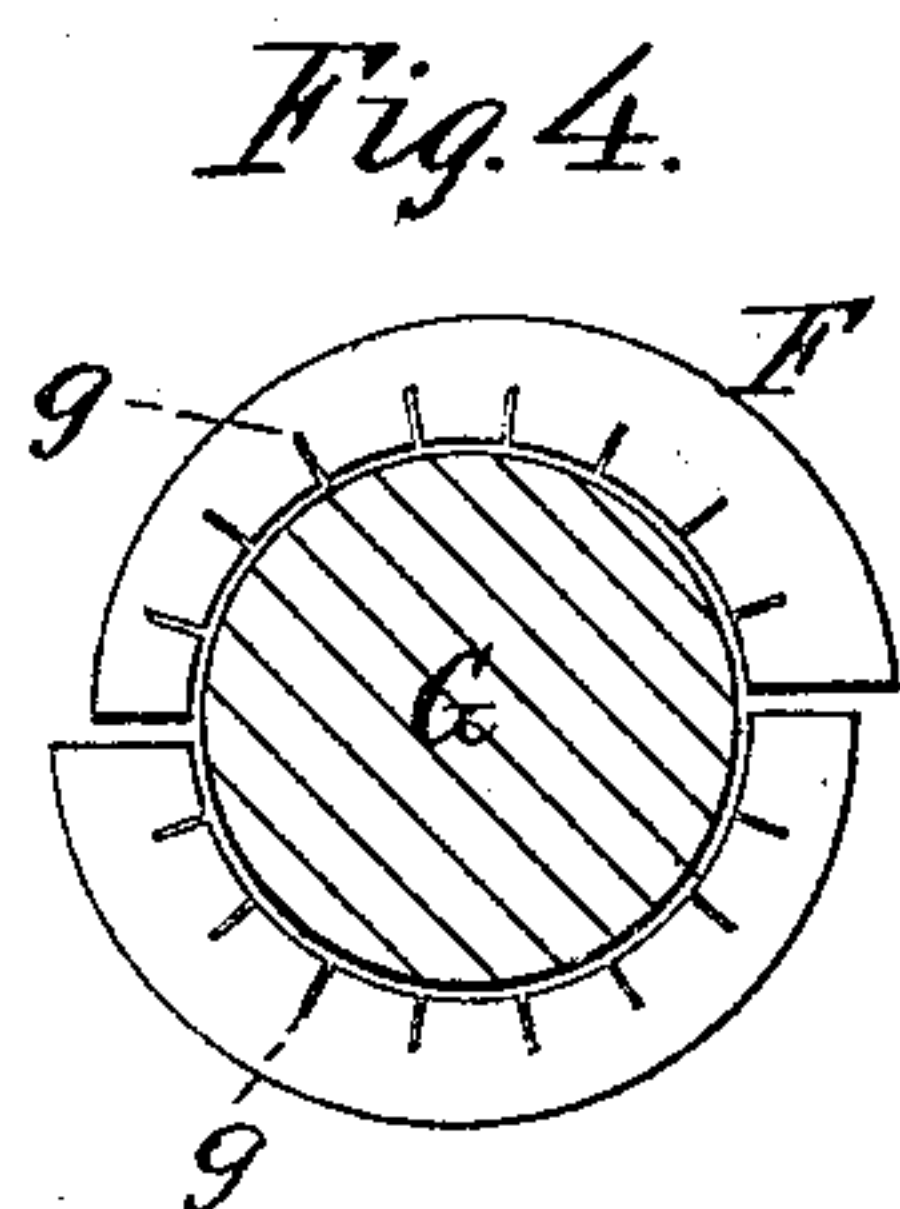
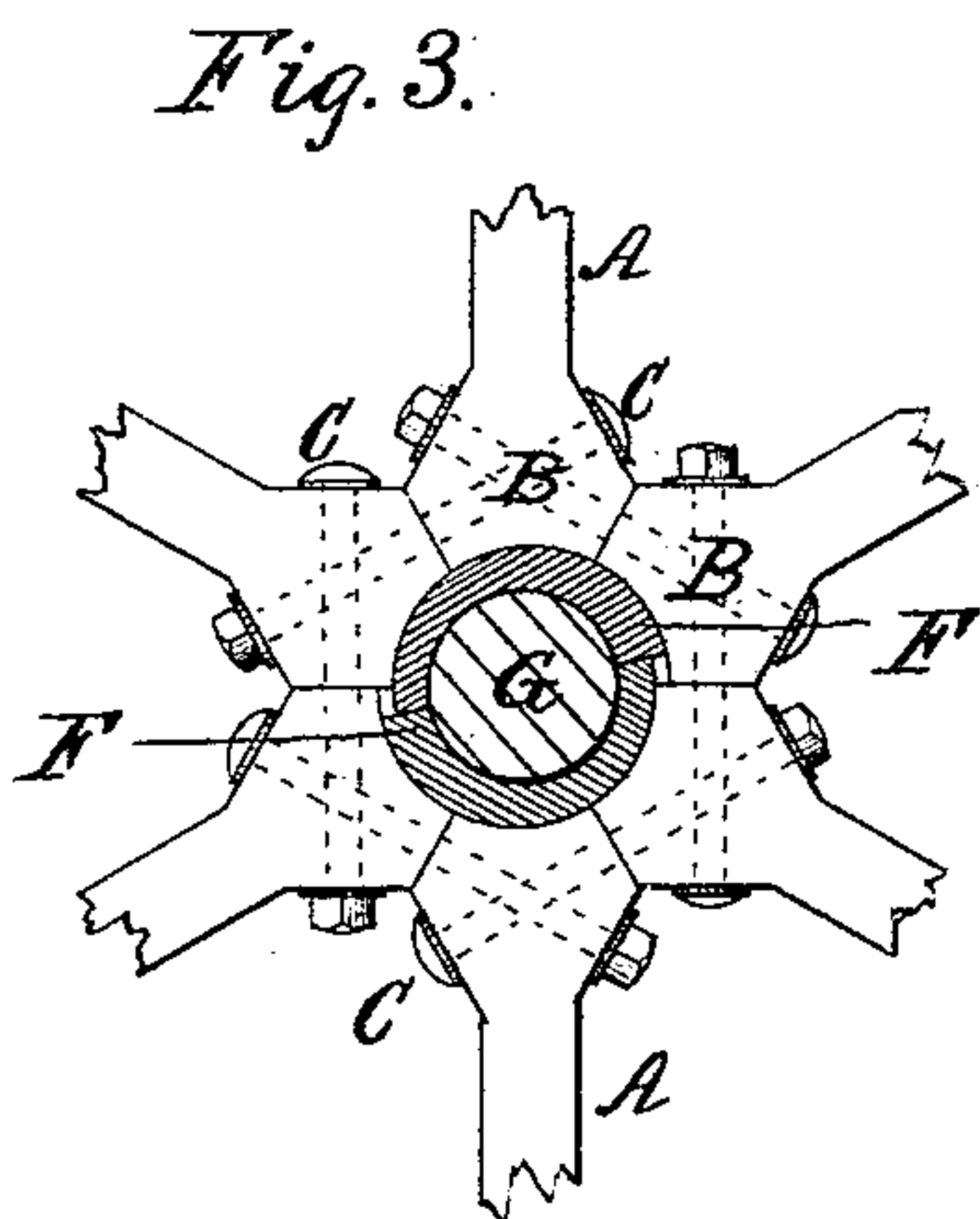
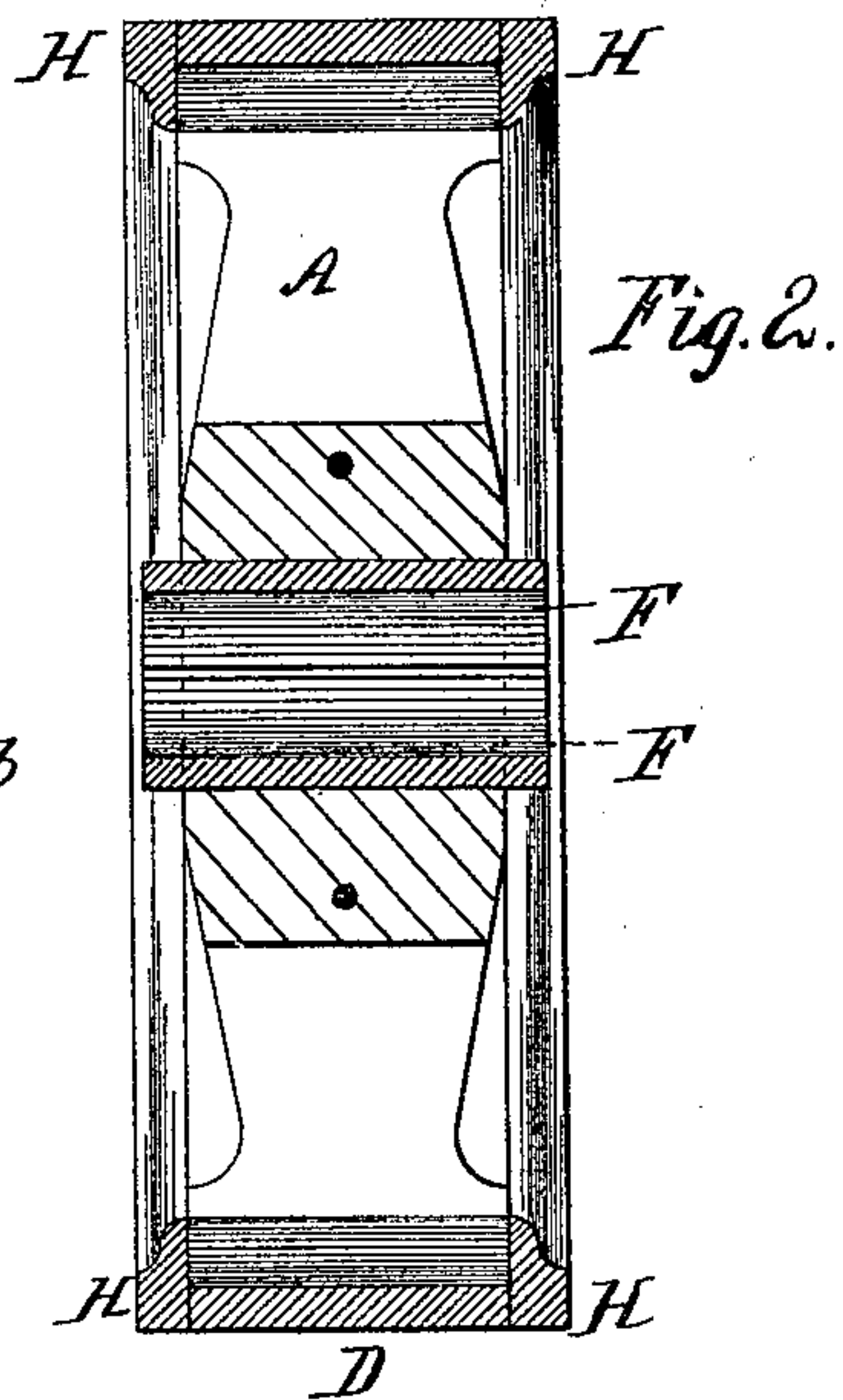
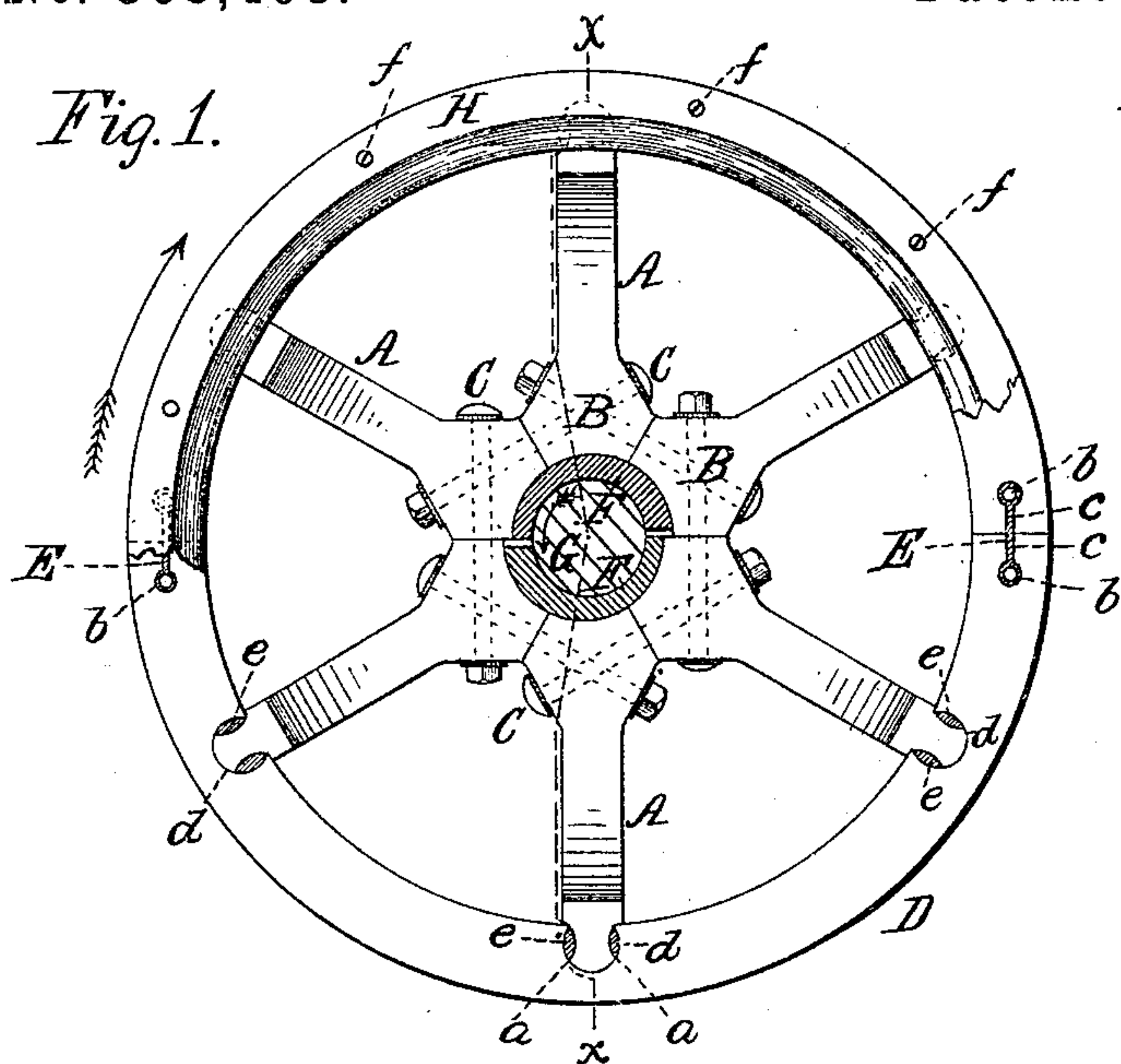


(No Model.)

H. J. GILBERT.
SEPARABLE PULLEY.

No. 368,468.

Patented Aug. 16, 1887.



WITNESSES:

W. C. Jindinstou
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INVENTOR

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UNITED STATES PATENT OFFICE.

HENRY J. GILBERT, OF DAYTON, OHIO.

SEPARABLE PULLEY.

SPECIFICATION forming part of Letters Patent No. 368,468, dated August 16, 1887.

Application filed April 27, 1887. Serial No. 236,276. (No model.)

To all whom it may concern:

Be it known that I, HENRY J. GILBERT, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Separable Pulleys, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to that class of pulleys known as "separable pulleys," which are usually made of iron or wood; and it has for its object the improvement in the construction of such pulleys.

The novelty of my invention will be herein set forth, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a pulley embodying my invention and partly in section. Fig. 2 is a sectional end elevation of the same through the dotted line *xx* of Fig. 1. Fig. 3 is a detail elevation of the combined spokes and hub, with the separable clamping-sleeve applied thereto. Figs. 4 and 5 are enlarged elevations of the separable clamping-sleeve, containing a modification in its construction. Fig. 6 is a side elevation of a solid pulley, showing the application of my improved separable clamping-sleeve thereto. Fig. 7 is a sectional elevation through the dotted line *yy* of Fig. 6.

The same letters of reference are used to indicate identical parts in all the figures.

In one embodiment of my invention, illustrated in Figs. 1 and 2, the pulley is constructed as follows: There are six spokes, A, with enlarged butts B, of the shape shown, having their contiguous surfaces so beveled as to fit snugly one against the other to form a hub, and which are united by bolts C, passing through them, as shown. The tenons upon the outer ends of the spokes A are grooved out or notched in a direction transversely of the rim, as seen at *a*, Fig. 1. The rim of the pulley D is made of two semicircular pieces, which, near their abutting ends, are bored through from one side, as at *b*, Fig. 1, and have coincident slots *c*, of a width less than the bores, cut through from the ends of the abutments into the bores *b*, so that when the two parts of the rim are brought together a metal key, E, of a shape

conforming to the bores *b* and slots *c*, is inserted therein, and thereby forms a dovetail locking-key on each side, which firmly unites both sections of the rim. In addition to the bores *b*, the rim is provided with circular bores *d* to receive the tenons upon the outer ends of the spokes, which latter are securely locked in place by keys *e*, driven in between the tenon and the sides of the bores and fitting snugly in the notches formed in the sides of the tenons. The inner ends of the butts B of the spokes forming the hub are so cut out or shaped as to form two half-circles eccentric to each other and to the center of the pulley, thus forming an irregular-shaped shaft-opening, as shown. Into this opening is fitted the separable cam-clamping sleeve F, whose outer periphery conforms and fits snugly to the opening in the hub, and whose inner periphery constitutes a true circle concentric to the center of the pulley. This clamping-sleeve, while preferably made of two parts, if of sufficiently yielding material may be made of one piece. It results from this construction that when the pulley, having the cam-clamping sleeve properly inserted, is applied to the shaft G it fits loosely thereon, as shown in Figs. 1 and 4, and the ends of the cam-sleeve do not quite meet; but upon partially rotating said cam-sleeve in the direction of the small arrow to the position shown in Figs. 3 and 5 it is made to bind tightly upon the shaft, and forms a means of securely locking the pulley to the shaft without the necessity of any other fastening devices.

Of course it is obvious that this pulley can be built up right upon the shaft, if desired. Furthermore, by placing the pulley on the shaft in proper position, according as the pulley is used to drive the shaft or is driven by it, the resistance offered by the cam-sleeve to the shaft, or vice versa, may be utilized to cause the sleeve to bind tighter and tighter as the resistance is increased. Thus, in Fig. 1, if the power is being communicated from the pulley to the shaft and they are rotating in the direction of the large arrow, the resistance offered by the shaft to the cam-sleeve will cause the sleeve to bind more tightly upon the shaft, while if the power is being communicated from the shaft to the pulley and they are rotating in a direction opposite to that indicated

by the large arrow a like result will be accomplished.

To prevent the lateral disengagement of the spokes from the rim, I provide covering-rings 5 H, which fit evenly to the sides of the rim and are secured thereto by bolts or screws *f*.

To give greater flexibility to the cam-clamping sleeve it may be provided with transverse internal slots, *g*, as seen in Fig. 4, which, when 10 the cam has been compressed and clamped upon the shaft, are sprung together, as seen in Fig. 5. This feature of the cam-clamping sleeve may, as seen in Figs. 6 and 7, be applied to pulleys of any material or construction.

15 It will of course be seen that the advantages derived from the mechanical construction of the pulley above described can be obtained no matter what the material may be of which the pulley is constructed, although I have found 20 that great lightness, combined with cheapness and strength, is obtained by constructing the parts that go to make up the pulley of wood.

Having thus fully described my invention, I claim—

25 1. The combination, with a pulley provided with a shaft-opening cut out or shaped to form

two half-circles eccentric to each other and to the center of the pulley, of a separable cam-clamping sleeve fitted into said shaft-opening, substantially as described, whereby the partial 30 rotation of said clamping-sleeve in said shaft-opening centers the pulley on the shaft and firmly binds it thereto.

2. The combination, with a pulley, of a cam-clamping sleeve slotted transversely on its inner 35 side and fitted in the shaft-opening of the pulley, substantially as and for the purpose described.

3. A separable pulley consisting of the spokes whose inner ends are fastened together 40 to form a hub and whose outer ends are tenoned and provided with locking-grooves, a two-part rim secured together by dovetail keys and provided with bores for the reception of the spoke-tenons, which are secured therein by dovetail 45 locking-keys, and covering-rings applied to the sides of said rim, substantially as described.

HENRY J. GILBERT.

Witnesses:

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