

C. C. BRABANT.
WHEEL HUB.

APPLICATION FILED JULY 14, 1904.

2 SHEETS—SHEET 1.

FIG. 1.

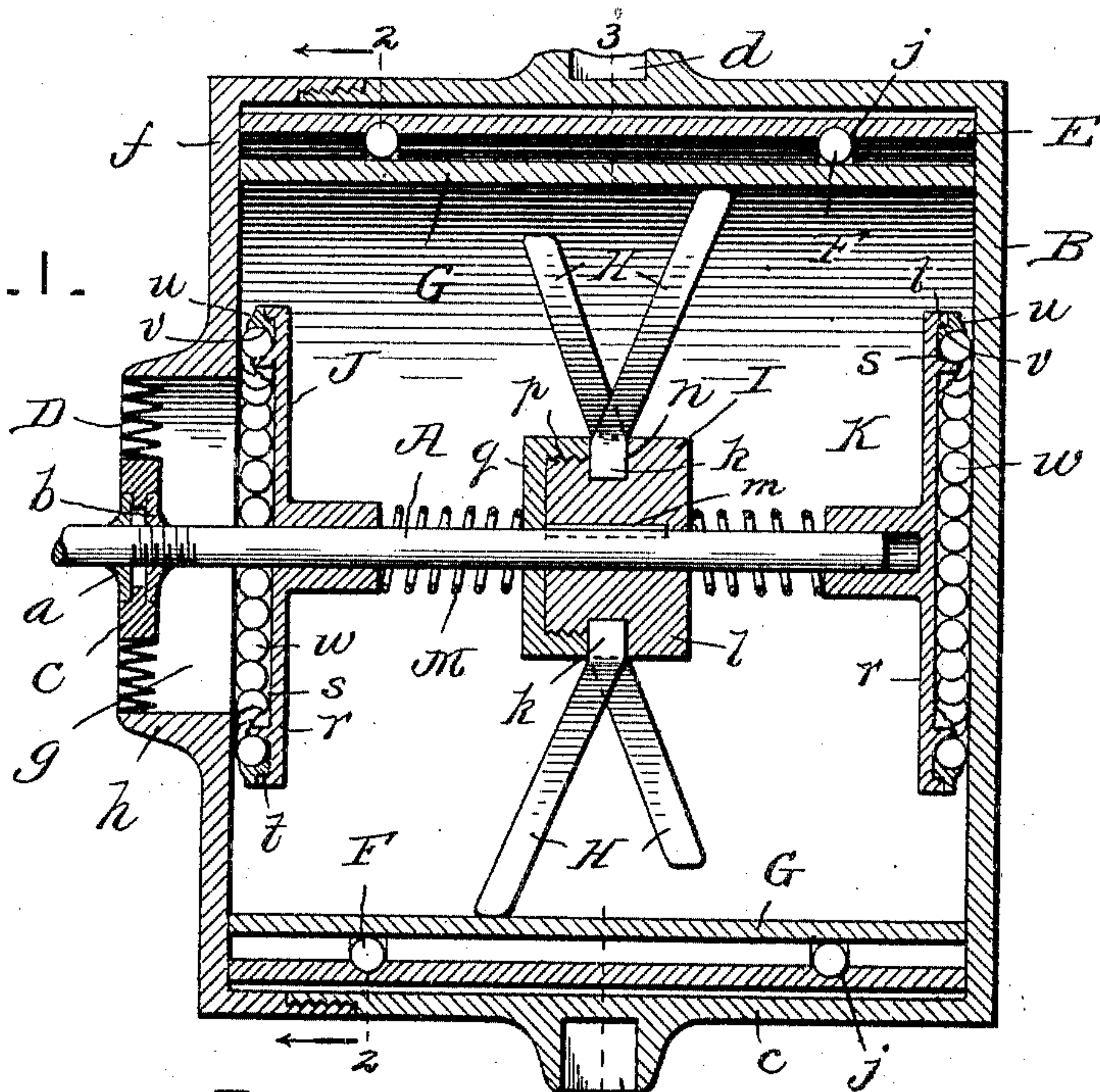


FIG. 2.

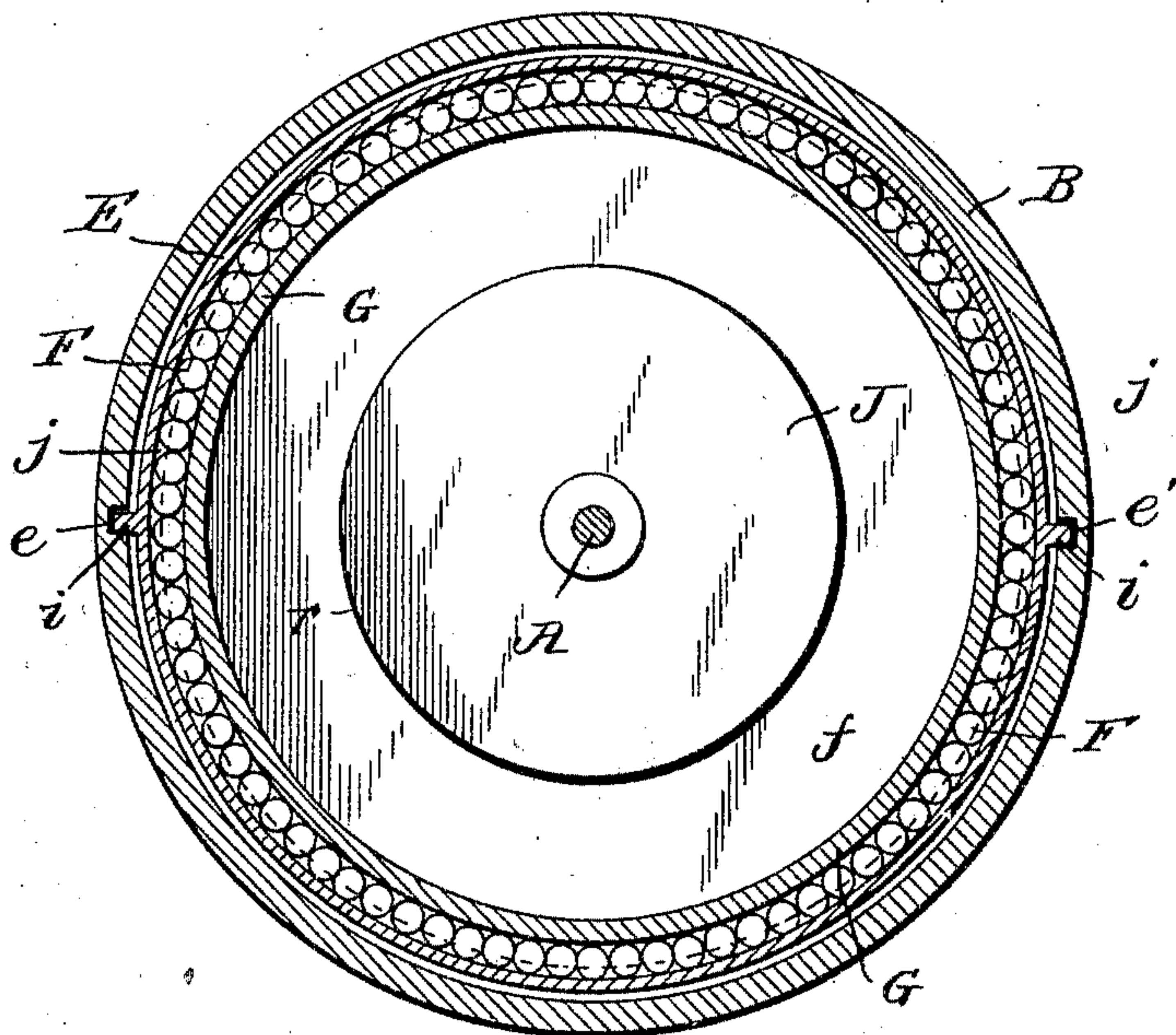
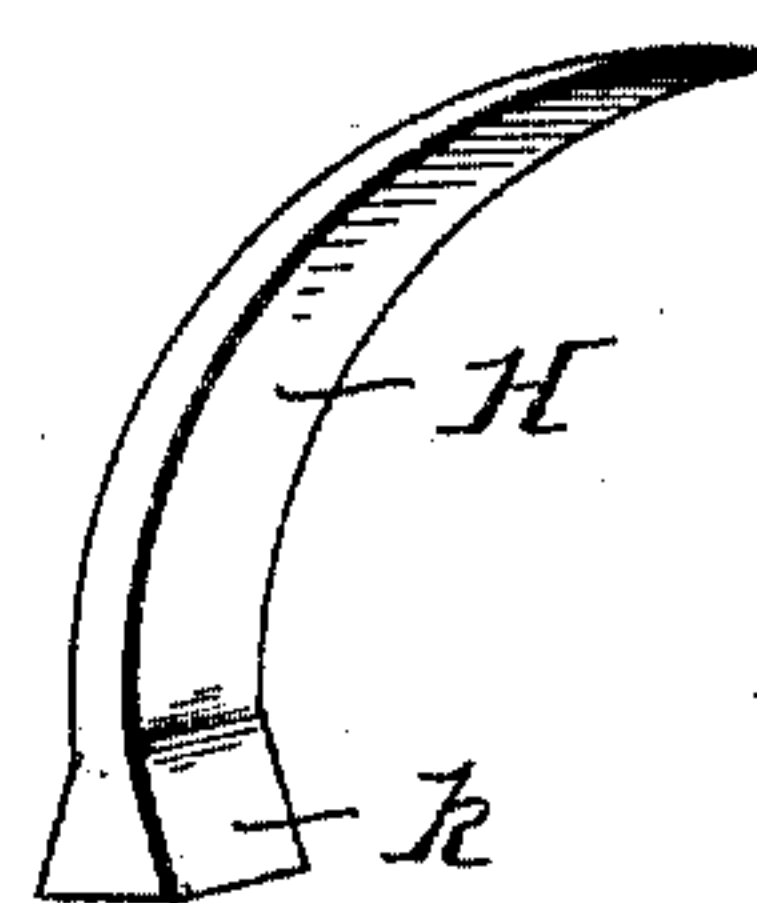


FIG. 4.



Witnesses

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No. 780,153.

PATENTED JAN. 17, 1905.

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WHEEL HUB.

APPLICATION FILED JULY 14, 1904.

2 SHEETS—SHEET 2.

FIG. 3.

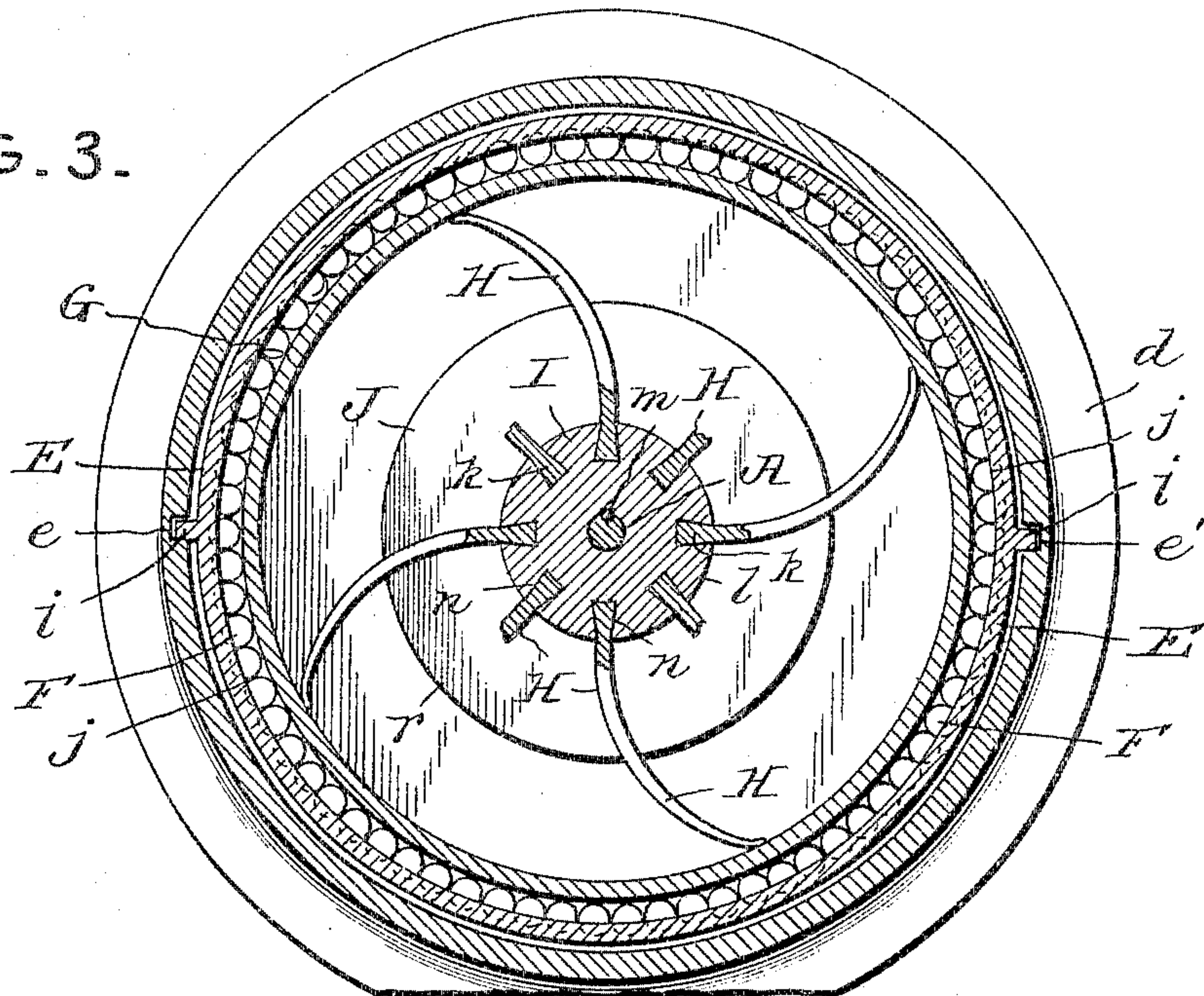
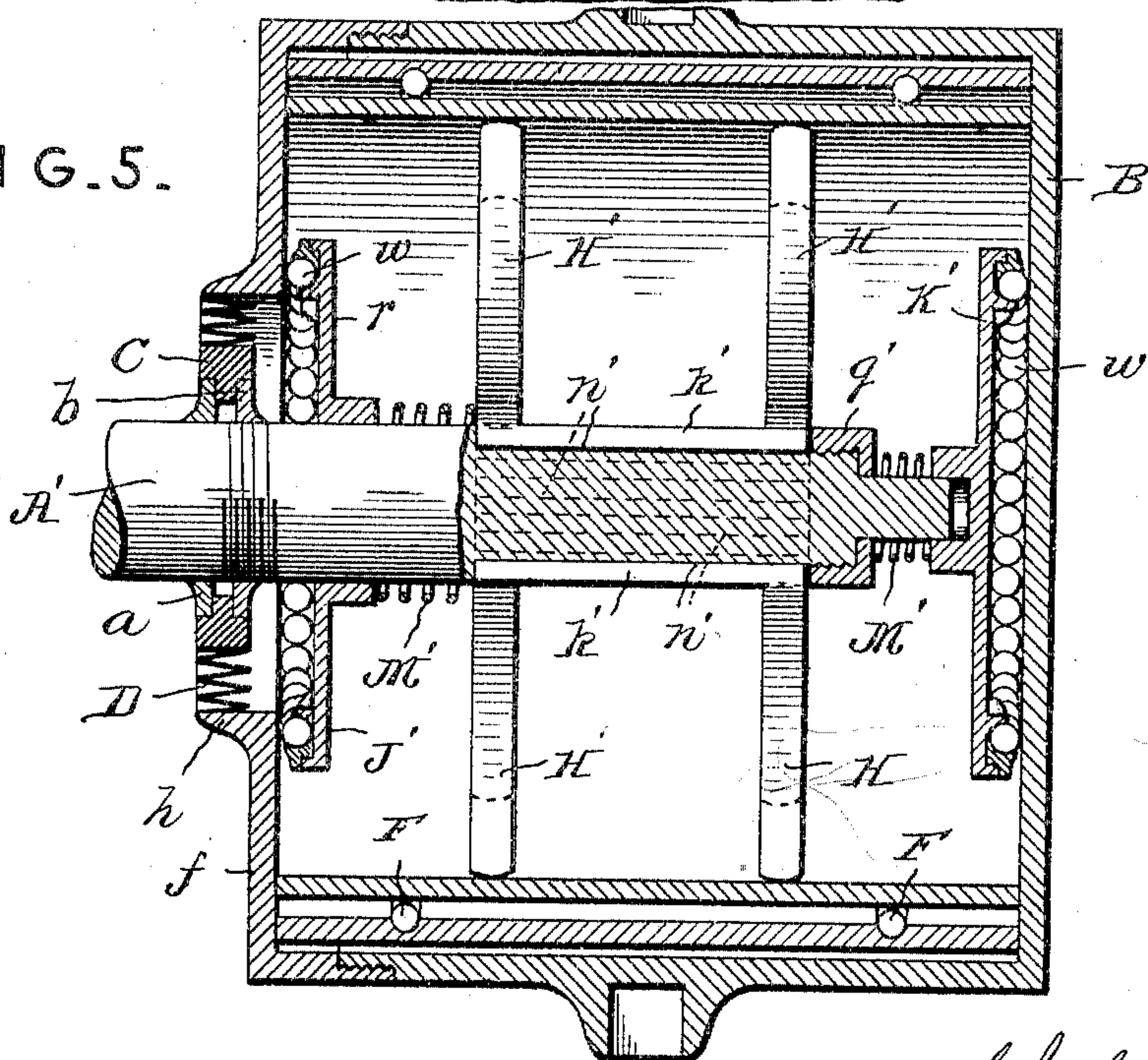


FIG. 5.



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WHEEL-HUB.

SPECIFICATION forming part of Letters Patent No. 780,153, dated January 17, 1905.

Application filed July 14, 1904. Serial No. 216,507.

To all whom it may concern:

Be it known that I, CHARLES C. BRABANT, a citizen of the United States, residing at Alpena, in the county of Alpena and State of Michigan, have invented new and useful Improvements in Wheel-Hubs, of which the following is a specification.

My invention pertains to wheel-hubs; and it contemplates the provision of a simple and durable hub calculated to efficiently cushion such weight and lateral pull and thrust as are imposed upon it and one which is so constructed that dust, grit, and the like are effectually prevented from gaining access to its interior.

With the foregoing in mind the invention will be fully understood from the following description and claims, when taken in connection with the accompanying drawings, forming part of this specification, in which—

Figure 1 is a view, partly in diametrical section and partly in elevation, of the hub constituting the preferred embodiment of my invention. Fig. 2 is a transverse section taken in the plane indicated by the line 2 2 of Fig. 1 looking toward the left. Fig. 3 is a transverse central section taken in the plane indicated by the line 3 3 of Fig. 1. Fig. 4 is a view of one of the weight-sustaining springs of the hub removed. Fig. 5 is a view similar to Fig. 1, illustrating a modified construction hereinafter referred to.

Referring by letter to the said drawings, and more particularly to Figs. 1 to 4 thereof, A is an axle which is peculiar in that it has a fixed shoulder *a* and a threaded annulus *b* adjacent to said shoulder, and B is the casing of my novel hub. The said casing is circular in cross-section and comprises an outer section *c*, closed at its outer end and open and exteriorly threaded at its inner end and having exterior spoke-sockets *d* and one or more interior longitudinally-disposed grooves *e* and an inner section *f*, screwed on the inner end of the outer section, and having a large central opening *g* and a flange *h* surrounding the same and also having grooves *e'* alined with those of the outer section for a purpose presently set forth. C is an annulus, of felt or

other suitable material, having a reduced inner portion snugly occupying the space between the shoulder *a* and annulus *b* of the axle A, and D is a bellows of strong textile or other suitable material surrounding the annulus C and connected to the same and also to the flange *h* of the casing B. In virtue of this construction it will be noticed that notwithstanding the presently-described movements of the casing B with respect to the axle A dust, grit, and the like are precluded from entering the casing and deteriorating or interfering with the operation of the parts therein contained, which is an important desideratum. E is a boxing contained in the casing and held thereto by exterior ribs *i*, disposed in the grooves *e e'* of the casing-sections and having circular grooves or ball-races *j* in its inner side. F F are antifriction-balls movable in said grooves or races *j*. G is a shell on which the antifriction-balls F bear and are arranged to travel, and H H are weight-sustaining springs fixedly connected at their inner ends to the axle A in a manner presently described and bearing at their outer ends against the inner side of the shell G after the manner illustrated. It will be appreciated from the foregoing that the casing and its boxing E turn on the shell G and that the friction between the boxing and the shell is reduced to a minimum by the antifriction-balls F; also, that the springs H yieldingly support the casing, boxing E, balls F, and shell G in an efficient manner and take up all of the shock and jar incident to travel over rough roads. I prefer to provide the weight-sustaining springs H with dovetail inner ends *k* and to fixedly connect the same to the axle A through the medium of a block I. The said block I comprises a main section *l*, keyed at *m* on the axle A and having dovetail grooves *n* in its perimeter to receive the dovetail ends of the springs H and also having a threaded end *p* and a cap-section *q* screwed on said threaded end of the main section. The dovetail inner ends of the springs H are removably secured in the main section *l* by the cap-section *q*, as is also the key or feather *m*. The springs H are preferably arranged as

shown in Fig. 1—that is to say, said springs are alternately inclined in opposite directions from the plane of the transverse center of the hub—this in order to enable them to better sustain the weight imposed on the casing B and to better take up the shock and jar to which said casing is subjected. J K are inner and outer disks contained in the casing and loosely mounted on the axle A. The said disks, respectively, comprise a main section *r*, having a groove *s* and a thread *t*, a threaded ring *u*, screwed on the main section and having a groove *v*, which serves in conjunction with that of the main section to form a ball race, and antifriction-balls *w*, arranged in said race. The balls of the disks J K bear against the outer and inner ends of the casing B, and between the said disks and the block I and surrounding the axle are coiled springs M. In virtue of this construction it will be observed that the hub is yieldingly secured on the axle in a strong and durable manner and at the same time such lateral pull and thrust as the hub is subjected to is thoroughly cushioned.

In the modified construction shown in Fig. 5 the block I, hereinbefore described, is dispensed with and dovetail grooves *n'* are formed in the perimeter of a comparatively large axle A' to receive the dovetail inner ends *k'* of springs H', which dovetail inner ends *k'* are secured in the grooves of the axle by a section *q'*. The springs H' are arranged in two parallel series, as illustrated, so as to enable the same to better sustain the casing B in a yielding manner throughout the length of the hub. The inner coiled spring M' is interposed between the inner disk J' and the inner series of springs H' and the outer coiled spring M' between the section *q'* and the outer disk K'. With these exceptions the construction shown in Fig. 5 is similar to that shown in Figs. 1 to 4 and is possessed of all the advantages ascribed in detail to the latter.

It will be appreciated from the foregoing that my novel hub is calculated to prevent the transmission of shock and jar to the frames or bodies of vehicles of various kinds and is therefore susceptible of being used to advantage on automobiles, carriages, agricultural machines, &c.

With the exception of the annulus C, which is of felt or like material, all of the parts of my novel hub are by preference made of steel.

I have entered into a detailed description of the construction and relative arrangement of the parts embraced in the present and preferred embodiments of my invention in order to impart a full, clear, and exact understanding of the said embodiments. I do not desire, however, to be understood as confining myself to such specific construction and relative arrangement of parts, as such changes or modifications may be made in practice as

fairly fall within the scope of my invention as claimed.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a wheel-hub, the combination of an axle, a casing loosely mounted on and movable up and down and endwise with respect to the axle, yielding, weight-sustaining means interposed between the axle and the side of the casing, and yielding means interposed between the axle and the casing and arranged to cushion endwise movement of the same.

2. In a wheel-hub, the combination of an axle, a casing loosely mounted on and movable up and down and endwise with respect to the axle, yielding, weight-sustaining means interposed between the axle and the side of the casing, yielding means interposed between the axle and the casing and arranged to cushion endwise movement of the same, an annulus surrounding the axle, and a bellows connecting the washer and the casing and arranged at one end of the latter.

3. In a wheel-hub, the combination of an axle, a casing loosely mounted on the axle and open at one end, an annulus surrounding the axle, and a bellows connecting the annulus and the casing and closing the open end of the latter.

4. In a wheel-hub, the combination of an axle, a casing loosely mounted on the axle, weight-sustaining springs interposed between the axle and the side of the casing, disks loosely mounted on the axle, antifriction devices between said disks and the ends of the casing, and springs interposed between the axle and said disks.

5. In a wheel-hub, the combination of an axle, a casing loosely mounted on the axle, a shell arranged in the casing, antifriction devices interposed between the casing and the shell, weight-sustaining springs connected with the axle and bearing against the inner side of the shell, disks loosely mounted on the axle, antifriction devices between said disks and the ends of the casing, and springs interposed between the axle and said disks.

6. In a wheel-hub, the combination of an axle, a casing loosely mounted on the axle, a spring-sustained shell contained in the casing, antifriction devices interposed between the side of the casing and the shell, spring-pressed disks loosely mounted on the axle, and antifriction devices interposed between said disks and the ends of the casing.

7. In a wheel-hub, the combination of an axle having a circumferential groove, a casing loosely mounted on the axle and having a central opening at its inner end, an annulus snugly occupying the circumferential groove of the axle, a bellows connecting said annulus and the casing, weight-sustaining springs interposed between the axle and the side of

the casing, and springs interposed between the axle and the ends of the casing.

8. In a wheel-hub, the combination of an axle, a casing loosely mounted on the axle,
5 spring-pressed disks loosely mounted on the axle, and antifriction devices interposed between said disks and the ends of the casing.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

CHARLES C. BRABANT.

Witnesses:

WILLIAM C. BEAUFORT,
BEATRICE E. BRABANT.