

J. F. O'CONNOR.  
 FRICTION DRAFT RIGGING.  
 APPLICATION FILED OCT. 15, 1908.

911,901.

Patented Feb. 9, 1909.  
 2 SHEETS—SHEET 2.

Fig. 3

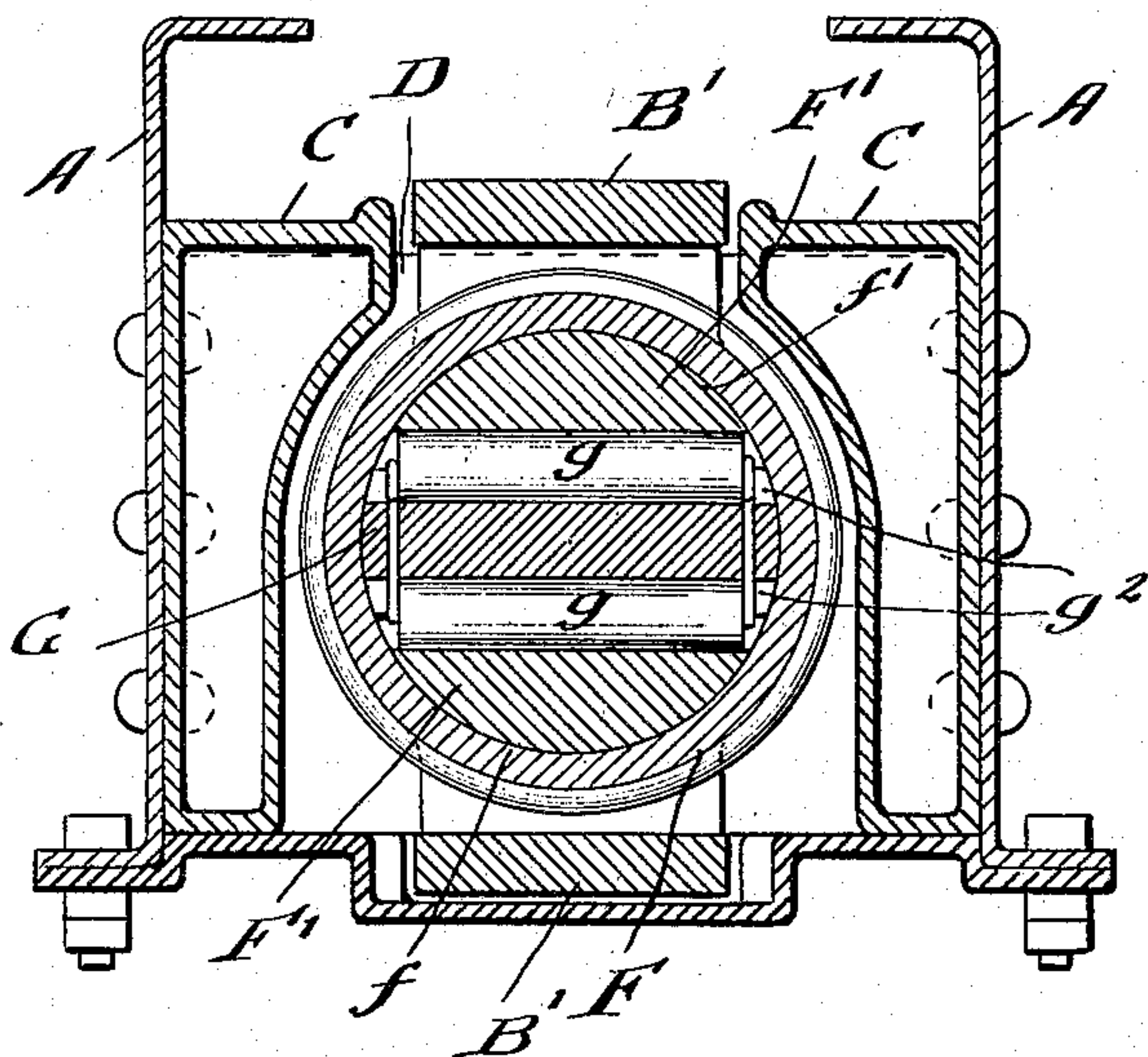


Fig. 4

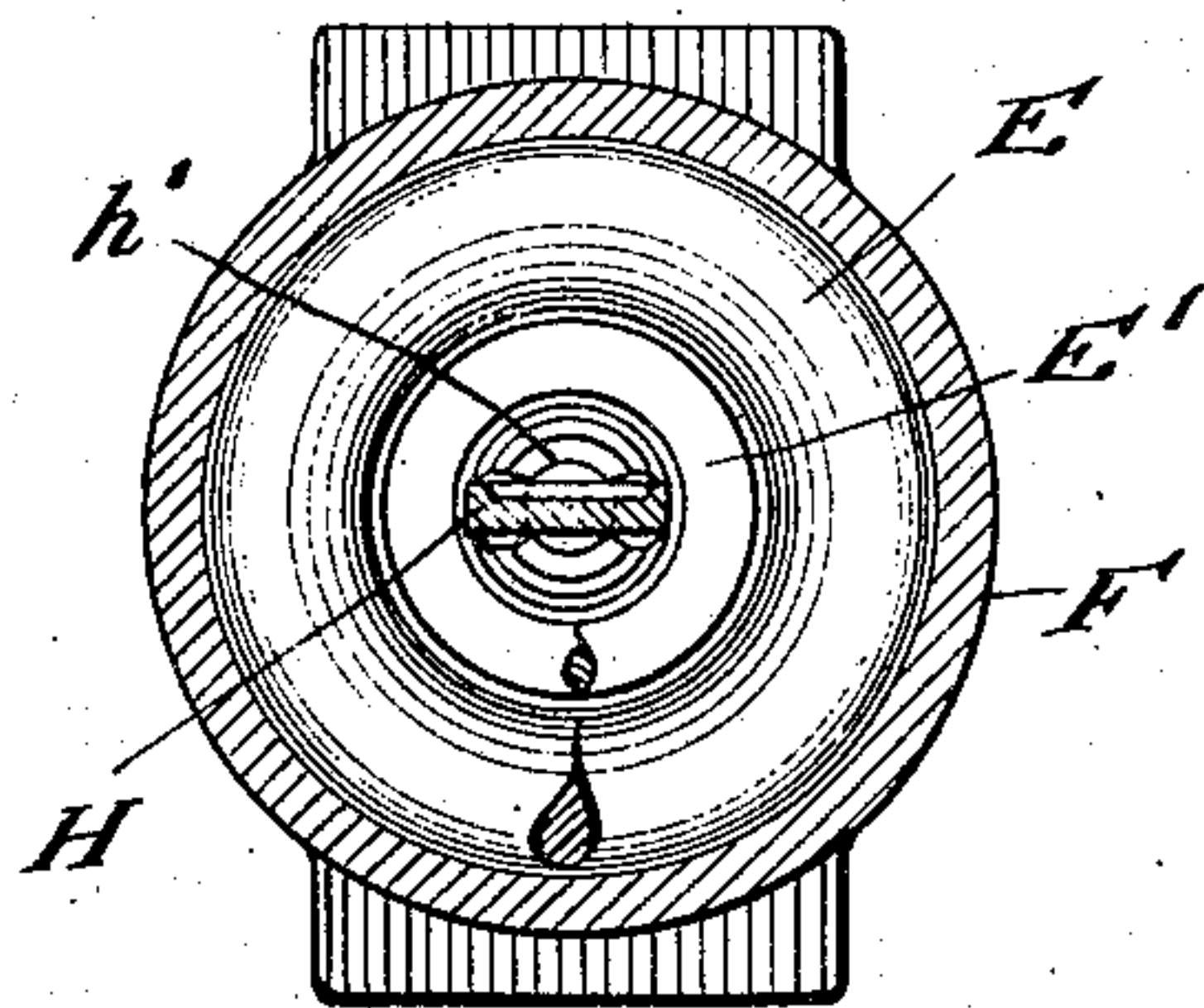


Fig. 5

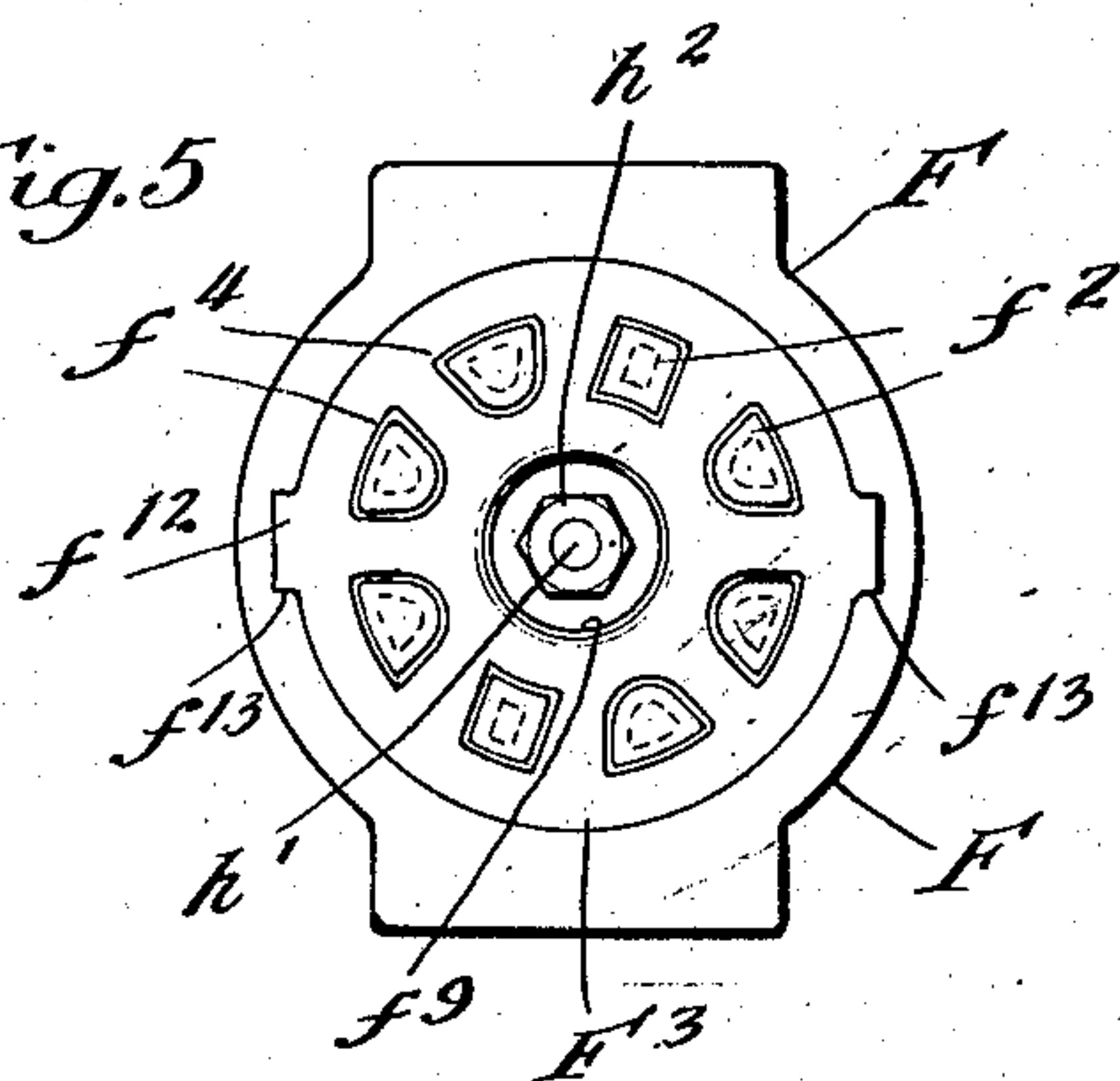


Fig. 6

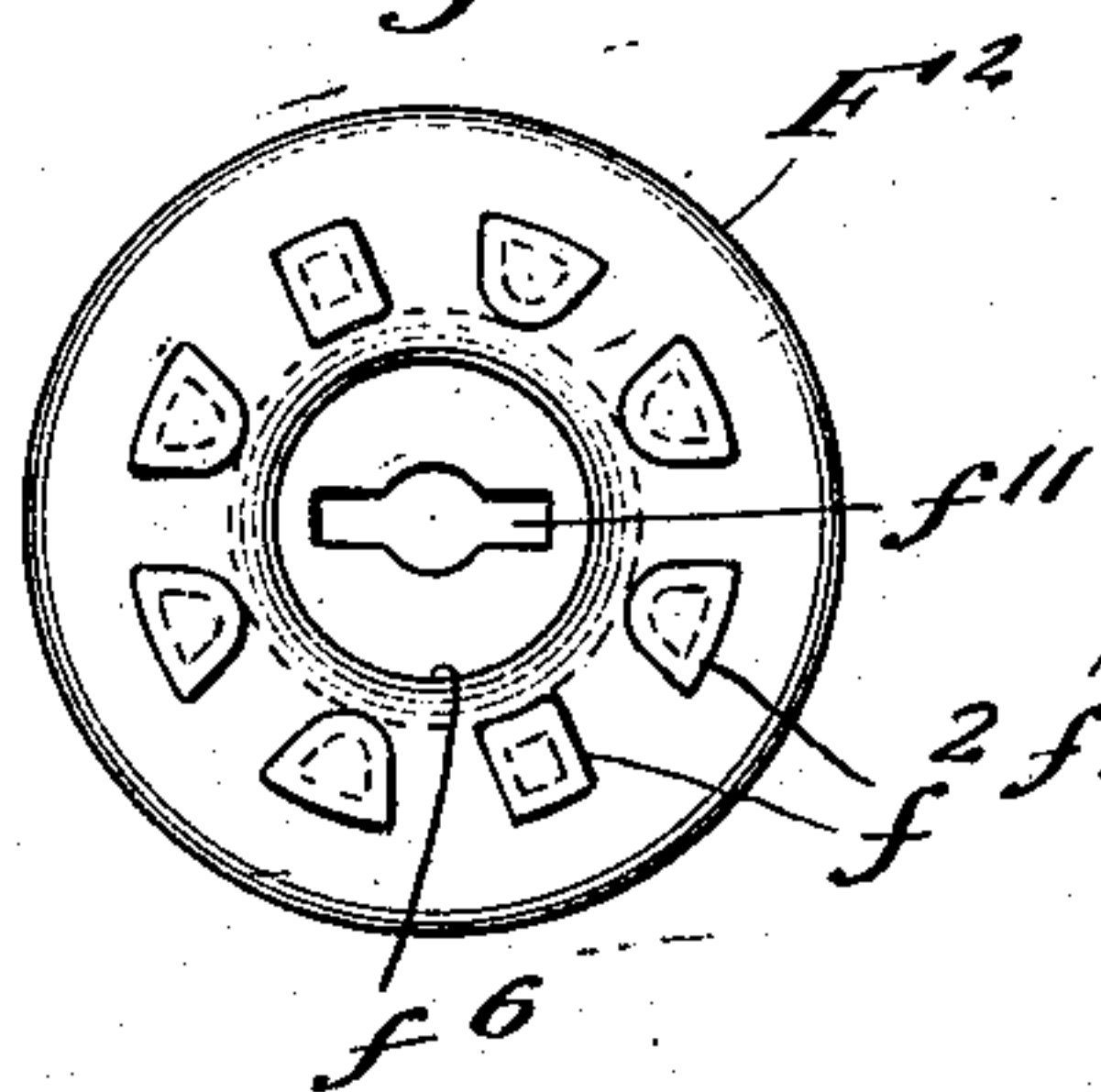


Fig. 7

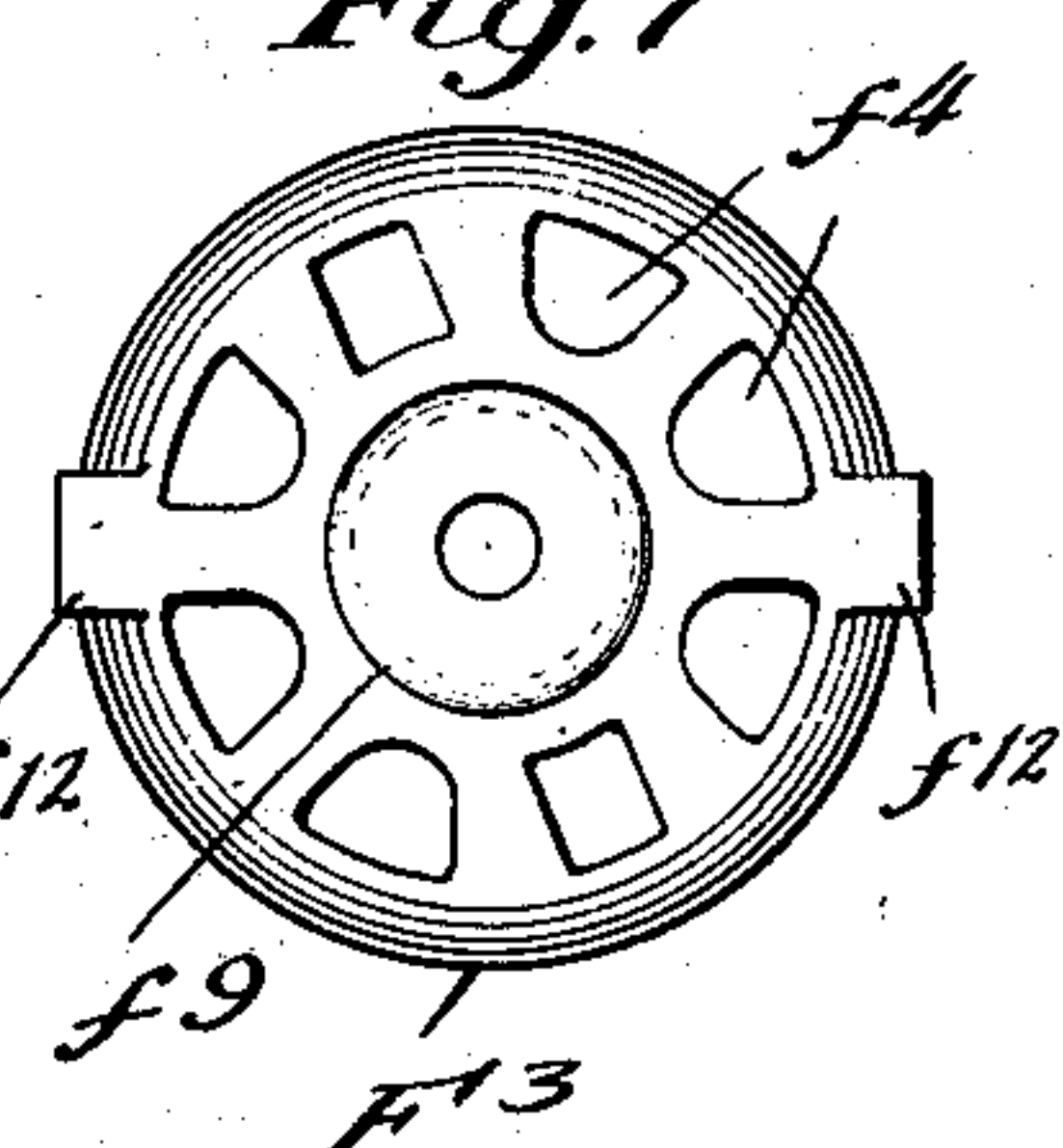


Fig. 8

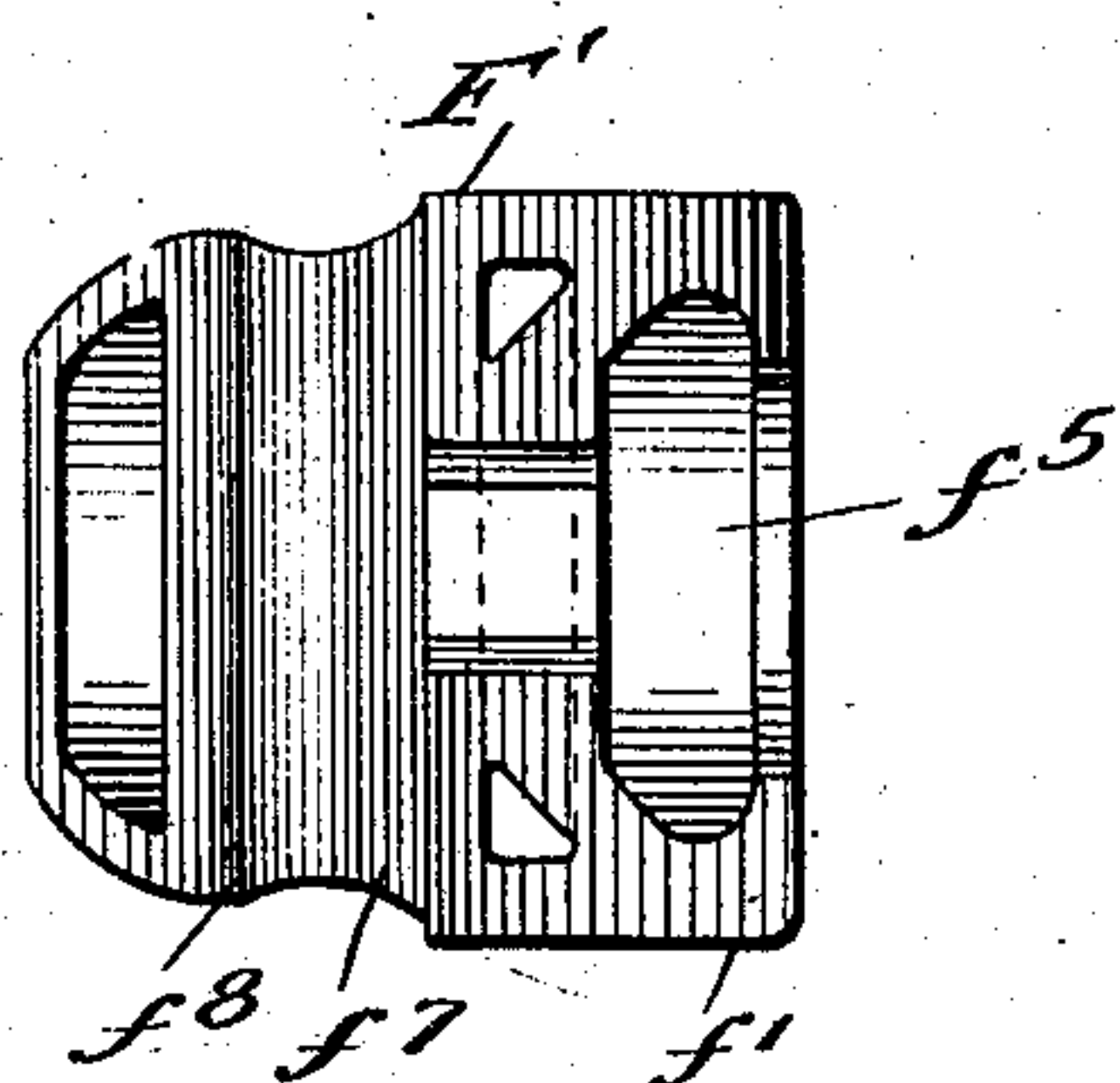
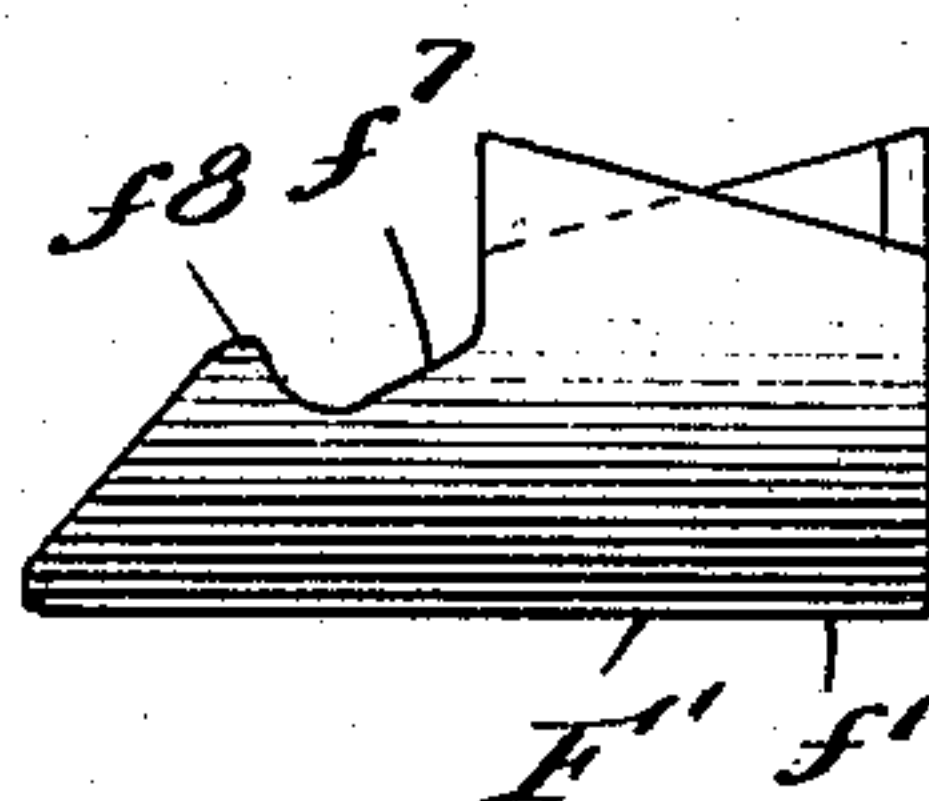


Fig. 9



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2 SHEETS—SHEET 1.



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# UNITED STATES PATENT OFFICE.

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## FRICITION DRAFT-RIGGING.

No. 911,901.

Specification of Letters Patent.

Patented Feb. 9, 1909.

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*To all whom it may concern:*

Be it known that I, JOHN F. O'CONNOR, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Friction Draft-Rigging, of which the following is a specification.

My invention relates to improvements in friction draft rigging.

My invention consists in the novel construction of parts and devices and in the novel combinations of parts and devices herein shown and described and more particularly specified in the claims.

In the accompanying drawing forming a part of this specification, Figure 1 is a side elevation partly in central vertical longitudinal section of a friction draft rigging embodying my invention. Fig. 2 is a plan view partly in horizontal section on line 2—2 of Fig. 1. Fig. 3 is a vertical cross section on line 3—3 of Fig. 1; Fig. 4 is a detail cross section of the friction shell on the line 4—4 of Fig. 1. Fig. 5 is a detail rear end elevation of the friction shell. Fig. 6 is a detail rear elevation of the preliminary compression follower. Fig. 7 is a detail rear elevation of the end or cap plate of the friction shell. Fig. 8 is a detail plan view of one of the friction blocks or shoes and Fig. 9 is a side elevation of same.

In the drawing, A represents the center sills or draft members of the car to which the draft rigging is applied, A<sup>1</sup> the front sill, B the draw-bar, B<sup>1</sup> the draw-bar yoke, C the side plates or stop castings having front, rear and intermediate stops C<sup>1</sup> C<sup>2</sup> C<sup>3</sup> C<sup>4</sup> for the followers D D<sup>1</sup> to abut against.

E E<sup>1</sup> are the draft rigging springs, the smaller one being inside the larger, the same bearing at one end against the friction shoes F<sup>1</sup> and at the rear end against the preliminary compression follower F<sup>2</sup>, and through it against the friction shell F. The friction shell F has an internal friction face *f* in sliding frictional engagement with the external friction faces *f*<sup>1</sup> of the friction shoes or blocks F<sup>1</sup>. The preliminary compression follower F<sup>2</sup> is furnished with bearing lugs *f*<sup>2</sup> which extend through the cap or end plate F<sup>3</sup> of the friction shell, preferably about one half inch so as to provide for a preliminary half inch compression of the springs or cushioning action before the friction devices F F<sup>1</sup> are forced to slide one in respect to the other.

The lugs *f*<sup>2</sup> on the preliminary compression follower extend through suitable holes or openings *f*<sup>4</sup> in the cap or end plate F<sup>3</sup> of the friction shell.

The friction shoes or blocks F<sup>1</sup> are furnished with a recess or cavity *f* to receive the front end of the inner or smaller spring E<sup>1</sup>; and the preliminary compression follower F<sup>2</sup> is furnished with an inwardly projecting boss *f*<sup>6</sup> which is surrounded by the rear coil of the outer or larger spring E<sup>1</sup>.

G is the wedge and *g g* anti-friction rollers interposed between the inclined faces *g*<sup>1</sup> of the wedge and the inclined faces *f*<sup>7</sup> of the friction shoes or blocks F<sup>1</sup>. The wedge G also has stop shoulders *g*<sup>2</sup> cooperating with similar stop shoulders *f*<sup>8</sup> on the friction shoes to hold the anti-friction rollers *g* in place. The wedge G has a coupling device *g*<sup>3</sup>, the same preferably comprising a double or slotted tongue-like extension and cross pin *g*<sup>4</sup> connecting the upper and lower members of such double extension, which is adapted to engage a coupling device *h*, preferably of a hook-like construction, on the connecting rod or device H which extends longitudinally through springs and connects the friction shoes F<sup>1</sup> with the cap or end plate F<sup>3</sup> of the friction shell F. The connecting member H is preferably furnished with a screw threaded stem *h*<sup>1</sup>, secured by a nut *h*<sup>2</sup> to said cap or end plate F<sup>3</sup>, said cap having a countersink or recess *f*<sup>9</sup> to accommodate said threaded stem and nut. The friction shell F is furnished at its rear end with a flange or shoulder *f*<sup>10</sup> against which the preliminary compression follower F<sup>2</sup> abuts. The preliminary compression follower F<sup>2</sup> is furnished with a horizontal slot *f*<sup>11</sup> to receive the rear end of the connecting rod or member H and thus hold the same and the friction shoes and wedge and rollers from turning in respect to the friction shell; said preliminary compression follower being itself held from turning by the cap or end plate F<sup>3</sup> of the friction shell which is prevented from turning by guide lugs *f*<sup>12</sup> thereon engaging guide slots *f*<sup>13</sup> in the friction shell. The connecting bar or member H serves to hold the springs normally under initial tension or load, the initial tension or compression thereof being preferably about one half inch. The connecting bar or member H also serves to hold all the parts assembled and also through its cooperative action with



the wedge, friction shoes, preliminary compression follower and cap or end plate of the friction shell, to keep all these parts from turning within the shell. The inter-  
 5 engaging coupling devices of the connecting bar H and wedge also enables the parts to be very quickly assembled or put together. The lugs  $f^2$  on the preliminary compression  
 10 follower F and the corresponding openings in the cap or end plate  $F^3$  of the friction shell are preferably made of two or more different forms or outlines so as to insure the same being readily and rightly put together in assembling.

15 In operation, the lugs  $f$  of the preliminary compression follower  $F^2$  extending through the cap or end plate  $F^3$  of the friction shell and engaging the rear follower, provide for a preliminary compression of the spring and  
 20 a preliminary cushioning action before the friction devices F  $F^1$  are brought into action. The initial tension or compression under which the connecting bar or device holds the springs causes the cushioning mechanism of  
 25 the draft rigging to remain always of the same proper standard length, notwithstanding the wear that may take place between the friction elements of the cushioning mechanism. The initial tension under which the  
 30 springs are held should be, as before stated, approximately one half inch, so as to give the draft rigging provision for taking up a large amount of wear between the friction shoes and friction shell without affecting the  
 35 normal action of the draft rigging. This initial tension under which the connecting device holds the springs also keeps all the parts in snug and proper engagement with each other.

40 I claim:—

1. In a friction draft rigging, the combination with the draw-bar and followers, of a friction shell, friction shoes within the  
 45 shell, a wedge, a preliminary compression follower interposed between one of the followers and the spring, a cap plate for the friction shell and a connecting bar between the wedge and cap plate, substantially as specified.

50 2. In a friction draft rigging, the combination with the draw-bar and followers, of a friction shell, friction shoes within the shell, a wedge, a preliminary compression follower interposed between one of the fol-  
 55 lowers and the spring, a cap plate for the friction shell, a connecting bar between the wedge and cap plate, and lugs extending through the cap plate to transmit movement

from the follower to the preliminary compression follower, substantially as specified. 60

3. In a friction draft rigging, the combination with the draw-bar and followers, of a friction shell, friction shoes within the shell, a wedge, a preliminary compression  
 65 follower interposed between one of the followers and the spring, a cap plate for the friction shell and a connecting bar between the wedge and cap plate, said connecting bar and wedge having interengaging coupling  
 70 devices, substantially as specified.

4. In a friction draft rigging, the combination with the draw-bar and followers, of a friction shell, friction shoes within the shell, a wedge, a preliminary compression  
 75 follower interposed between one of the followers and the spring, a cap plate for the friction shell and a connecting bar between the wedge and cap plate, said connecting bar and wedge having interengaging coupling  
 80 devices comprising a double tongue-like extension and a cross pin on the wedge and a hook member on the connecting bar, substantially as specified.

5. In a draft rigging, the combination with the draw-bar, yoke and followers and stops  
 85 for the followers, of a friction shell, friction blocks within the shell, a wedge, a cap plate for the end of the shell and a connecting bar between the cap plate and the wedge, substantially as specified. 90

6. In a draft rigging, the combination with the draw-bar, yoke and followers and stops  
 95 for the followers, of a friction shell, friction blocks within the shell, a wedge, a cap plate for the end of the shell and a connecting bar between the cap plate and the wedge, said connecting bar and cap plate having provision for preventing the wedge and friction  
 100 shoes from turning in the friction shell, substantially as specified.

7. In a draft rigging, the combination with the draw-bar, yoke and followers and stops  
 105 for the followers, of a friction shell, friction blocks within the shell, a wedge, a cap plate for the end of the shell and a connecting bar between the cap plate and the wedge, said connecting bar and cap plate having provision for preventing the wedge and friction  
 110 shoes from turning in the friction shell, and a preliminary compression follower having lugs extending through said cap plate, substantially as specified.

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Witnesses:

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