

No. 840,690.

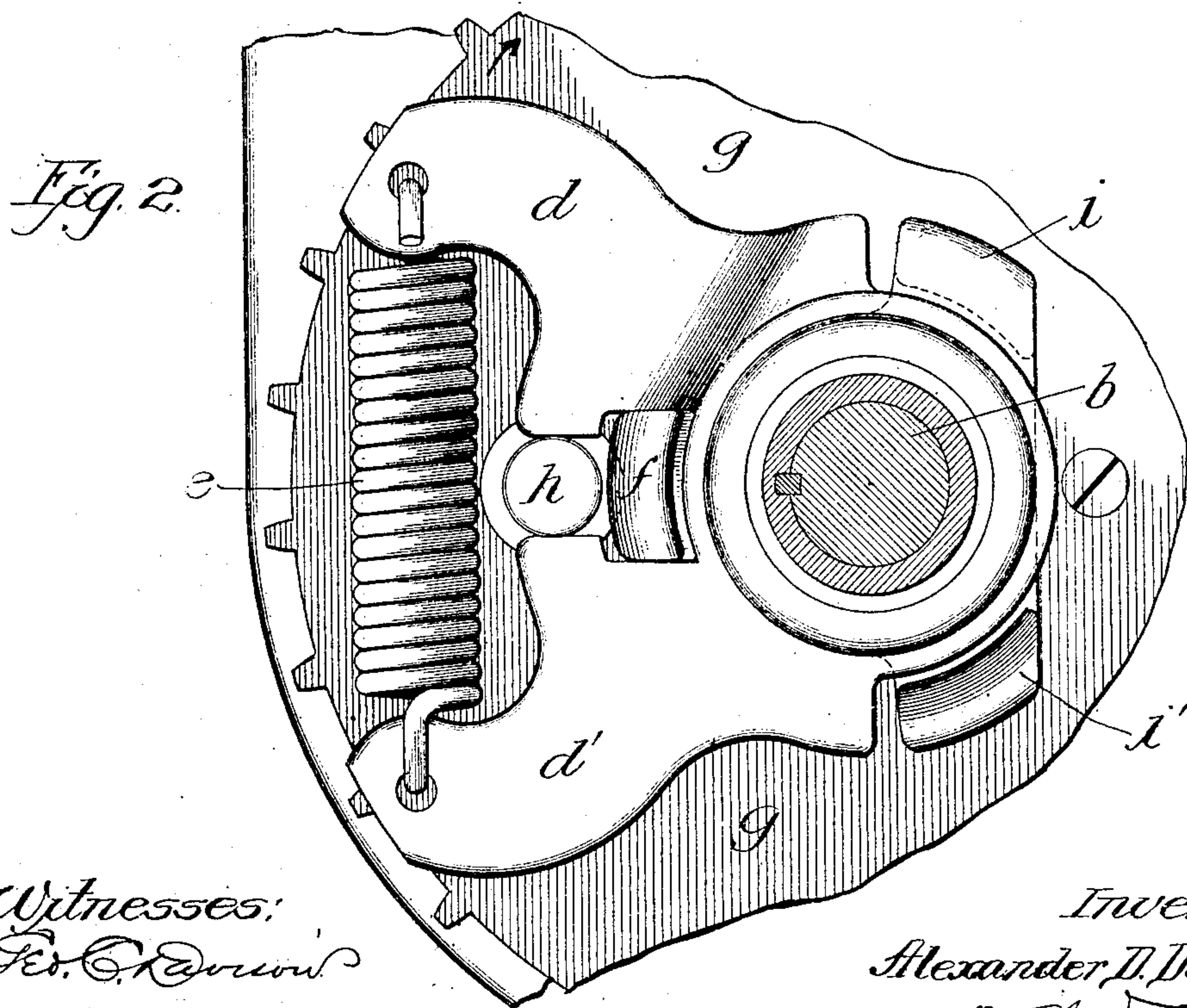
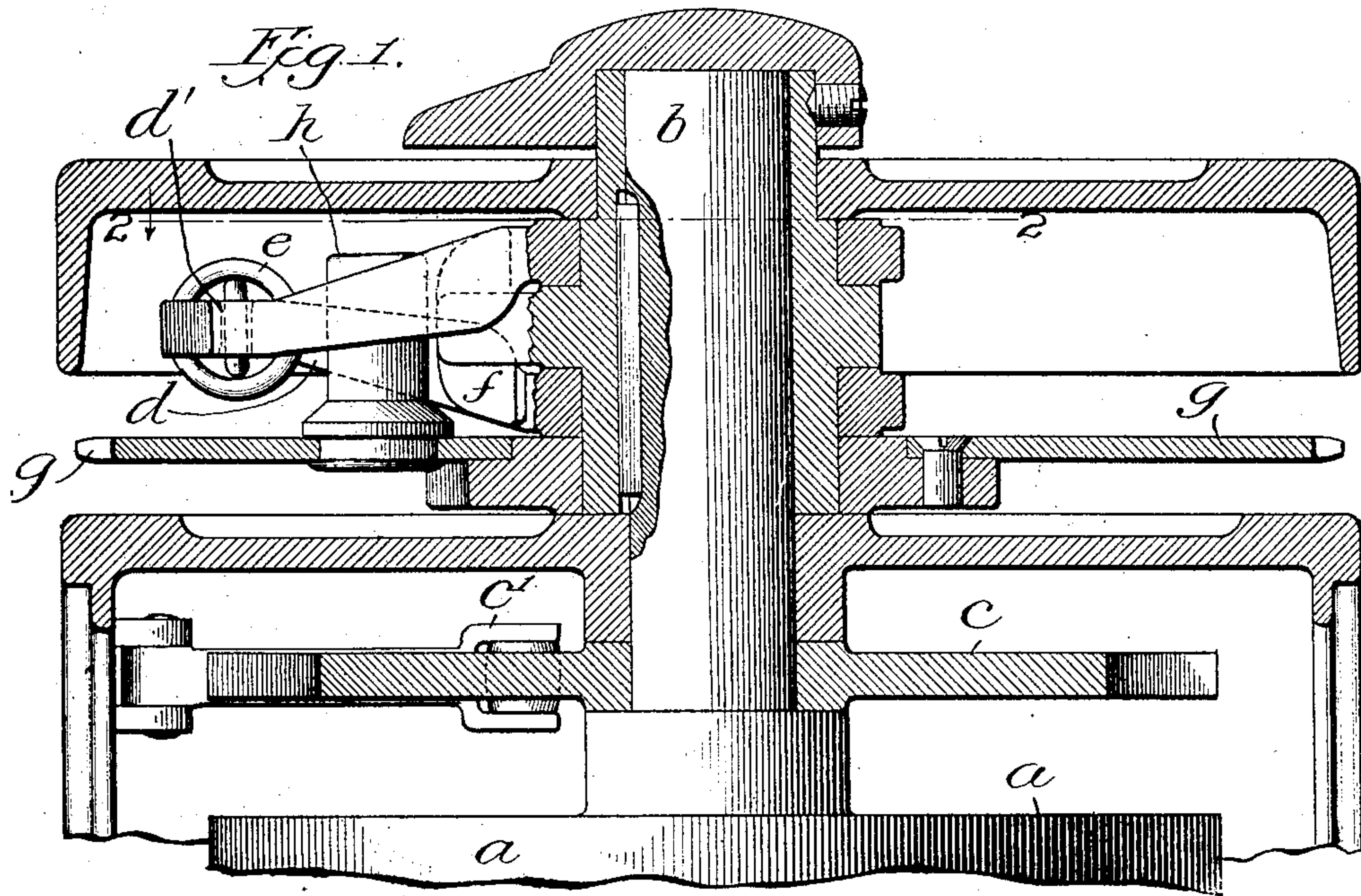
PATENTED JAN. 8, 1907.

A. D. DU BOIS.

SPRING ACTUATING DEVICE FOR DRUM CONTROLLERS.

APPLICATION FILED APR. 9, 1906.

2 SHEETS—SHEET 1.



Witnesses:
Ed. C. Ransom
J. E. Folk.

Inventor:
Alexander D. DuBois,
By Barton Tanner
Attys.

No. 840,690.

PATENTED JAN. 8, 1907.

A. D. DU BOIS.

SPRING ACTUATING DEVICE FOR DRUM CONTROLLERS.

APPLICATION FILED APR. 9, 1906.

2 SHEETS—SHEET 2.

Fig. 3.

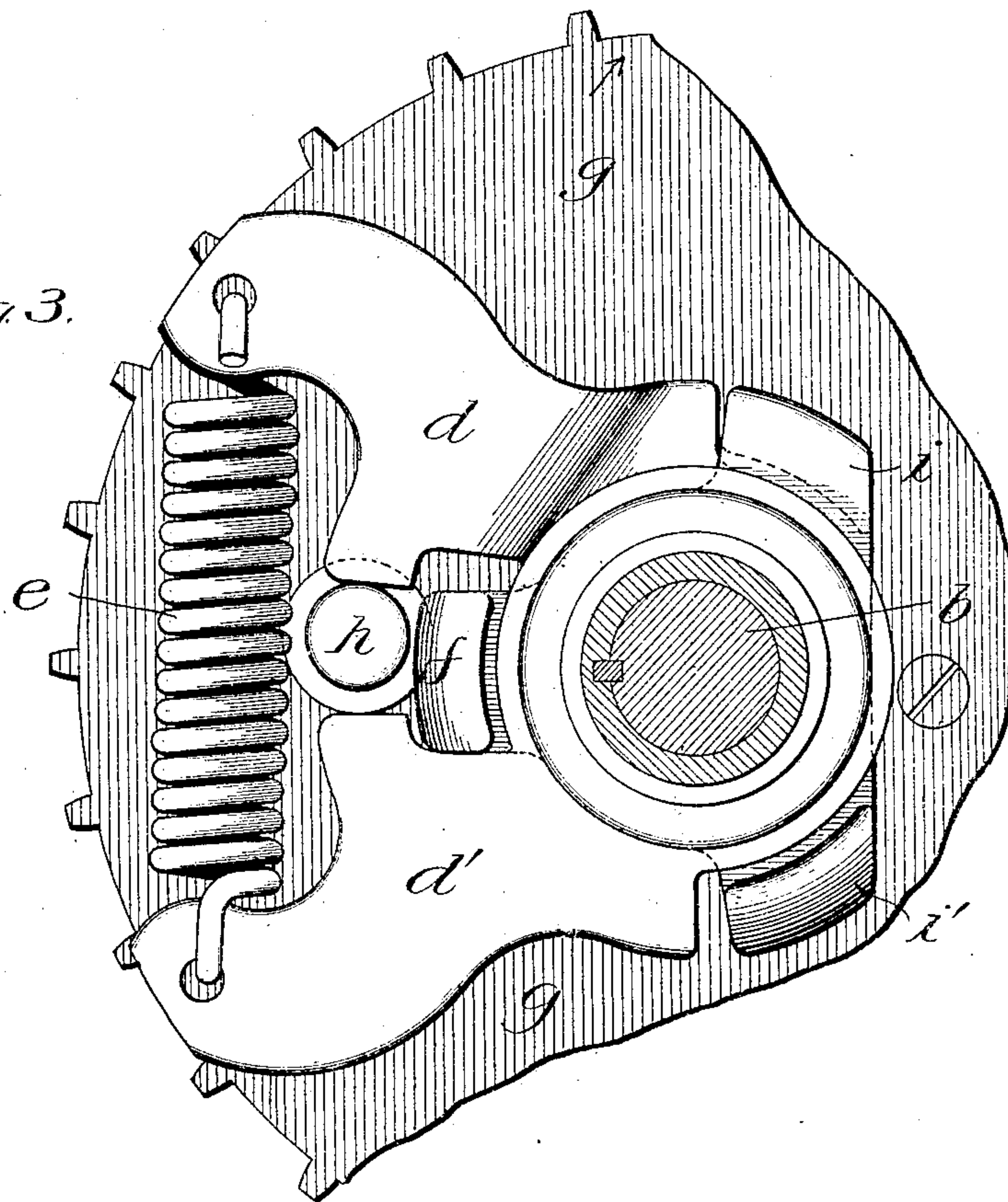


Fig. 4.

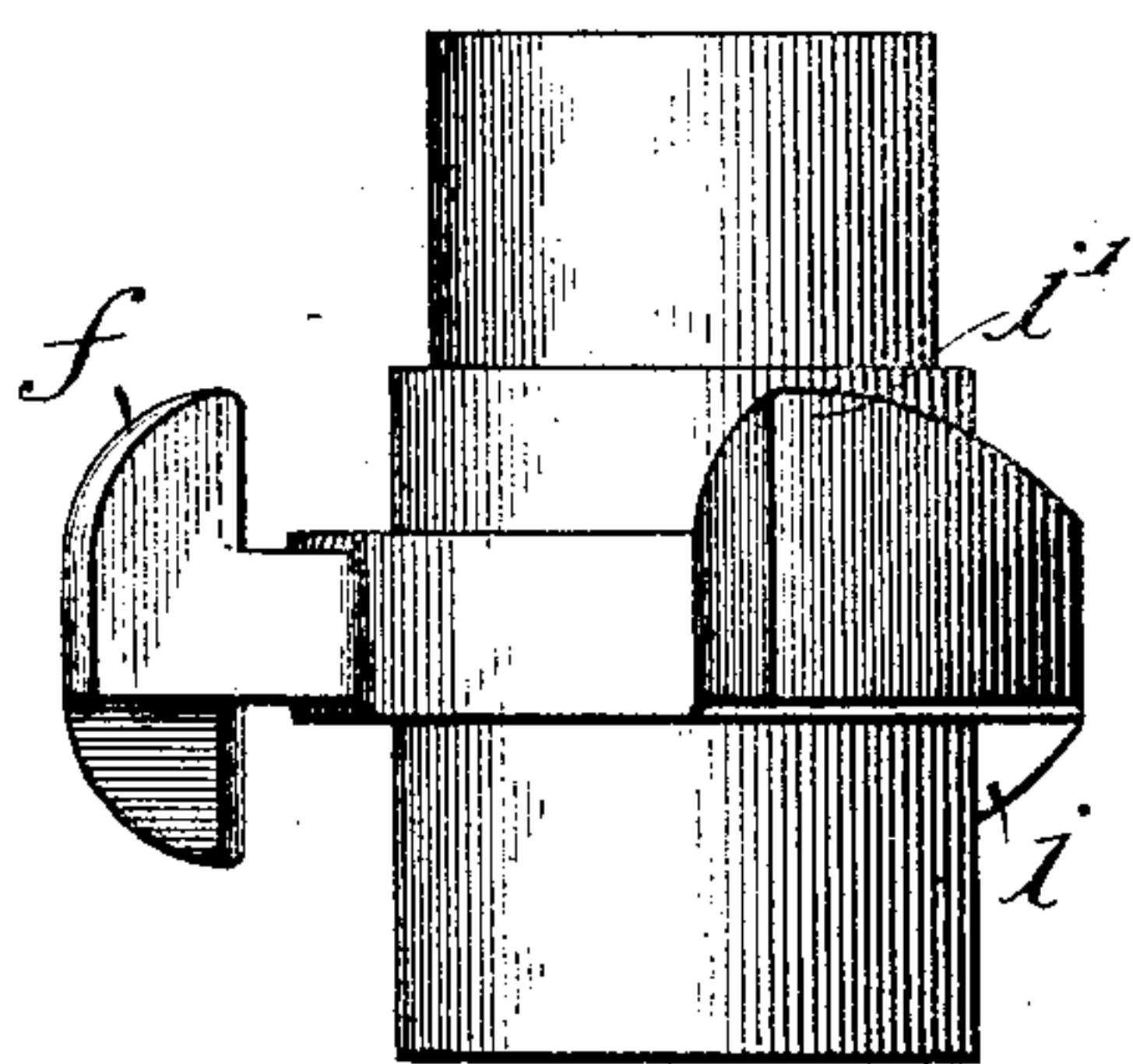
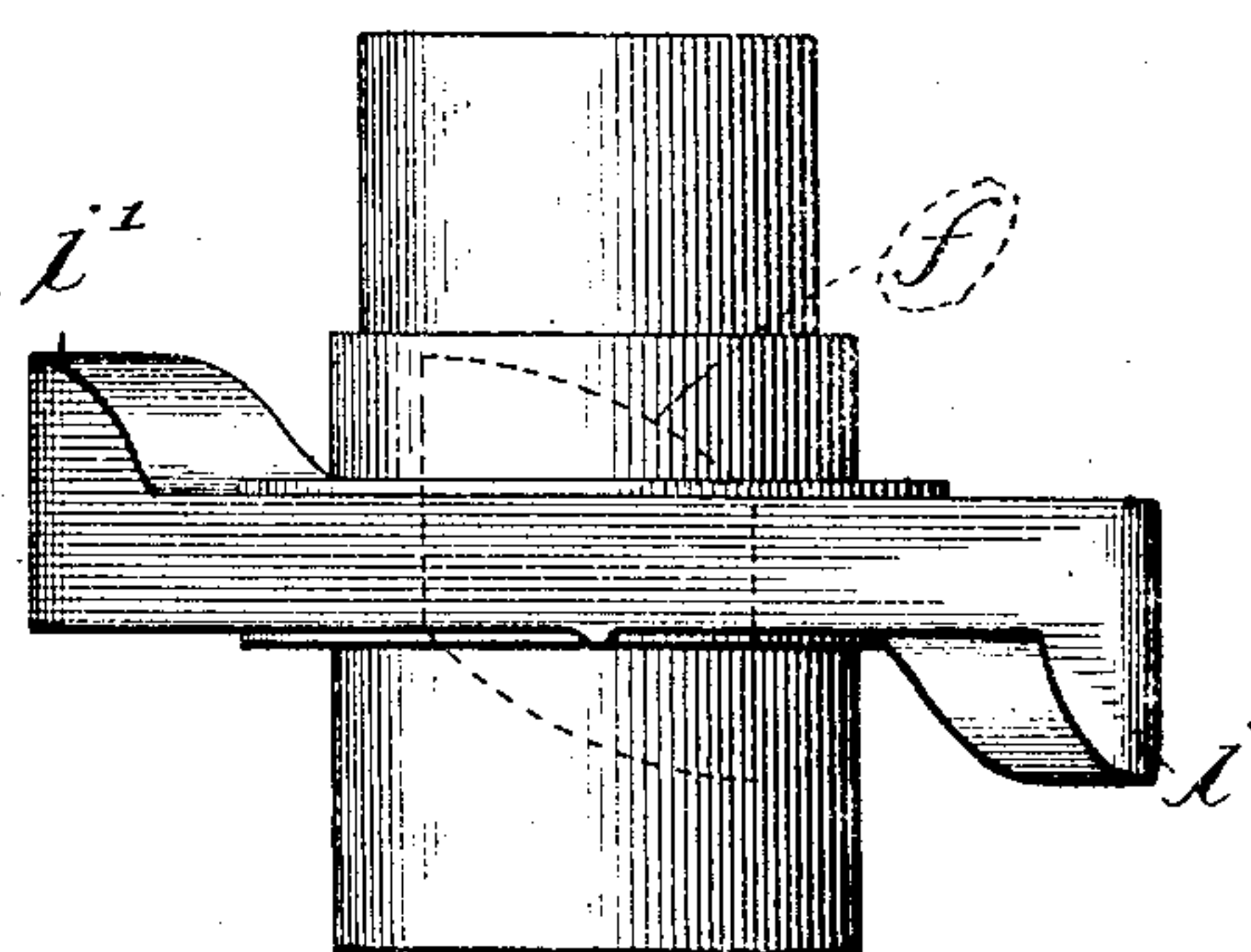


Fig. 5.



Witnesses:
Geo. C. Adams
J. H. Folk.

Inventor:
Alexander D. DuBois,
By Barton Towner
Attys.

UNITED STATES PATENT OFFICE.

ALEXANDER D. DU BOIS, OF CHICAGO, ILLINOIS, ASSIGNOR TO WESTERN ELECTRIC COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

SPRING ACTUATING DEVICE FOR DRUM-CONTROLLERS.

No. 840,690.

Specification of Letters Patent.

Patented Jan. 8, 1907.

Application filed April 9, 1906. Serial No. 310,758.

To all whom it may concern:

Be it known that I, ALEXANDER D. DU BOIS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Spring Actuating Devices for Drum-Controllers, of which the following is a full, clear, concise, and exact description.

My invention relates to controllers for electric motors, and has for its object to provide improved means for imparting to the controller-drum rapid movements with respect to its contact-fingers in order to eliminate the objectionable features present in methods of control where contacts are made and broken slowly.

My invention contemplates the provision of a lever for operating the controller-drum connected by a flexible member, such as a tension-spring, with a second lever, which is adapted to be moved to cause said spring to operate said first-mentioned lever and rotate the drum by jerks in order, for example, to cut in or out the resistance of the motor-circuit.

I will describe my invention particularly by reference to the accompanying drawings, which illustrate the preferred embodiment thereof, reserving for the appended claims a statement of the parts, improvements, and combinations which I consider novel with me.

In the drawings, Figure 1 is a vertical sectional view of a spring actuating device for controllers embodying my invention. Fig. 2 is a cross-sectional view on line 2 2 of Fig. 1. Fig. 3 is a similar view with the parts in an alternative position. Figs. 4 and 5 are detail views in elevation of the shaft and lugs carried thereby.

The same letters of reference are used to designate the same parts wherever shown.

The controller-drum *a* (a portion whereof is shown) is provided with the usual contacts adapted in the rotation of the drum to engage fixed contact fingers or brushes to cut in or out the resistance of the motor-circuit. Said drum is provided with a shaft *b*, carrying the usual retarding device for the drum, comprising a star-wheel *c*, with its spring-controlled brake or pawl *c'*. In the embodiment of my invention shown a pair of levers

d d' are provided for rotating the shaft in opposite directions to cause the drum to cut resistance in or out, said levers being loosely mounted on the shaft with their free ends connected by a flexible member, such as a helical tension-spring *e*. A lug *f* is carried by the shaft *b*, and means are provided for moving either one of said levers *d d'* (depending upon the direction in which it is desired to rotate the drum) to cause said spring to expand and move the other lever to rotate the drum by rapid steps or sudden jerks against the retarding effect of the star-wheel *c* and its brake *c'*. A sprocket *g* is loosely mounted on the shaft *b* and carries a pin *h*, which normally lies between the levers *d d'*, said pin being adapted to engage either lever and cause the spring *e* to move the other lever into engagement with the lug *f*. Means may be provided for operating said sprocket from a distant point, if desired.

If the sprocket be rotated in the direction indicated by the arrow, the pin *h* engages the lever *d*, expanding the spring and causing said spring to move the arm *d'* into engagement with the lug *f*, as shown in Fig. 3. The shaft or drum will thus be rotated in a clockwise direction by sudden jerks, so that a quick make and break of the drum-contacts is obtained.

The drum through its star-wheel may offer such a resistance that the spring after moving through a predetermined working range will fail to start the same, and I may secure a pair of lugs *i i'* to the shaft to be engaged by the levers *d d'*, respectively, whenever either of such levers is initially operated through a certain predetermined distance without starting the drum. When such lever engages its lug, the shaft will be started and the spring will be able to give it the desired rapid movement or step.

I claim—

1. In a motor-controller, the combination with a contact-drum, of a pair of levers, a flexible connection between said levers, and means for operating either one of said levers to cause such other lever to effect the movement of said drum in rapid steps.

2. In a motor-controller, the combination with a contact-drum, of a shaft therefor, a lever loosely mounted upon said shaft, means controlled by said lever when operated

for moving said drum, a second lever loosely mounted upon said shaft, a flexible connection between said levers, and means for moving said second lever to operate the said first-mentioned lever.

3. In a motor-controller, the combination with a contact-drum, of a shaft therefor, a pair of levers loosely mounted on said shaft, a flexible connection between said levers, a lug secured to said shaft and adapted to be engaged by one of said levers to turn the shaft, and means for operating said other lever to cause the engagement of said first-mentioned lever with the lug to operate the drum.

4. In a motor-controller, the combination with a contact-drum, of a lever for operating said drum, a second lever, a tension-spring connecting said levers, a sprocket, and a pin carried thereby adapted to engage said second lever to cause said spring to operate said first-mentioned lever.

5. In a motor-controller, the combination with a contact-drum, of a shaft therefor, a star-wheel carried by said shaft, a spring-controlled brake therefor, a lug secured to said shaft, a lever loosely mounted on said shaft and adapted when operated to engage said lug to rotate the shaft, a second lever loosely mounted upon the shaft, a tension-spring connecting said levers, a sprocket, and a pin carried thereby adapted to engage said second lever to operate the first-men-

tioned lever and rotate said drum by sudden movements.

6. In a motor-controller, the combination with a contact-drum, of a shaft therefor, a retarding device for said drum, a pair of levers loosely mounted on said shaft, a flexible connection between said levers, a lug secured to the shaft, and means for operating either one of said levers to cause said other lever to engage said lug and move said drum in rapid steps.

7. In a motor-controller, the combination with a contact-drum, of a shaft therefor, a spring-actuated retarding device for said drum, a pair of levers loosely mounted upon said shaft, a tension-spring connecting said levers, a lug secured to the shaft, means for initially operating either one of said levers to cause said other lever to engage said lug and move said drum through rapid steps, a lug for each lever secured to the shaft, and adapted to be engaged by said lever, when initially operated, to start the drum when said spring moving through a predetermined working range has failed to overcome the resistance offered by the drum.

In witness whereof I hereunto subscribe my name this 4th day of April, A. D. 1906.

ALEXANDER D. DU BOIS.

Witnesses:

ROY T. ALLOWAY,
BERT STARR YORK.