

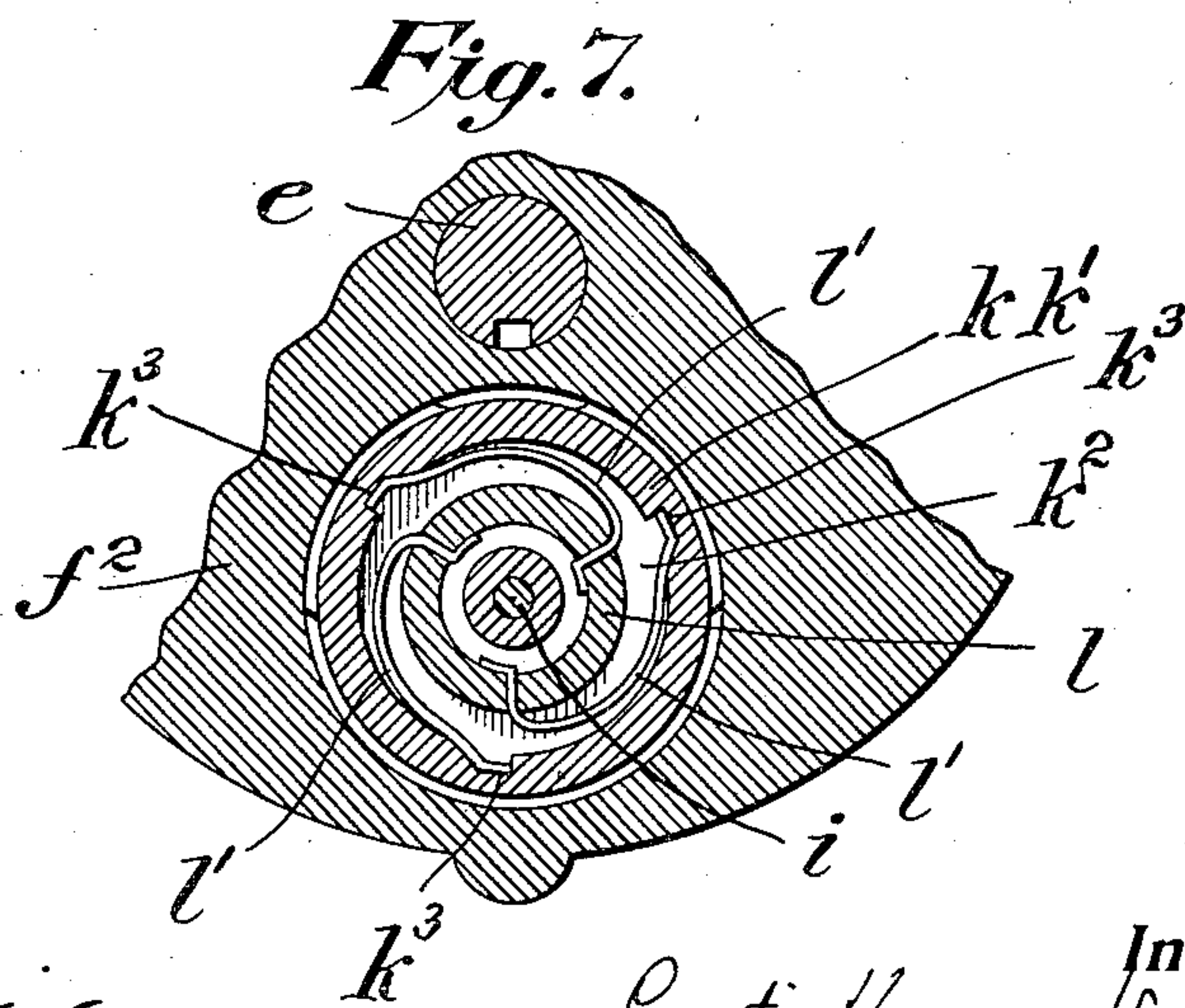
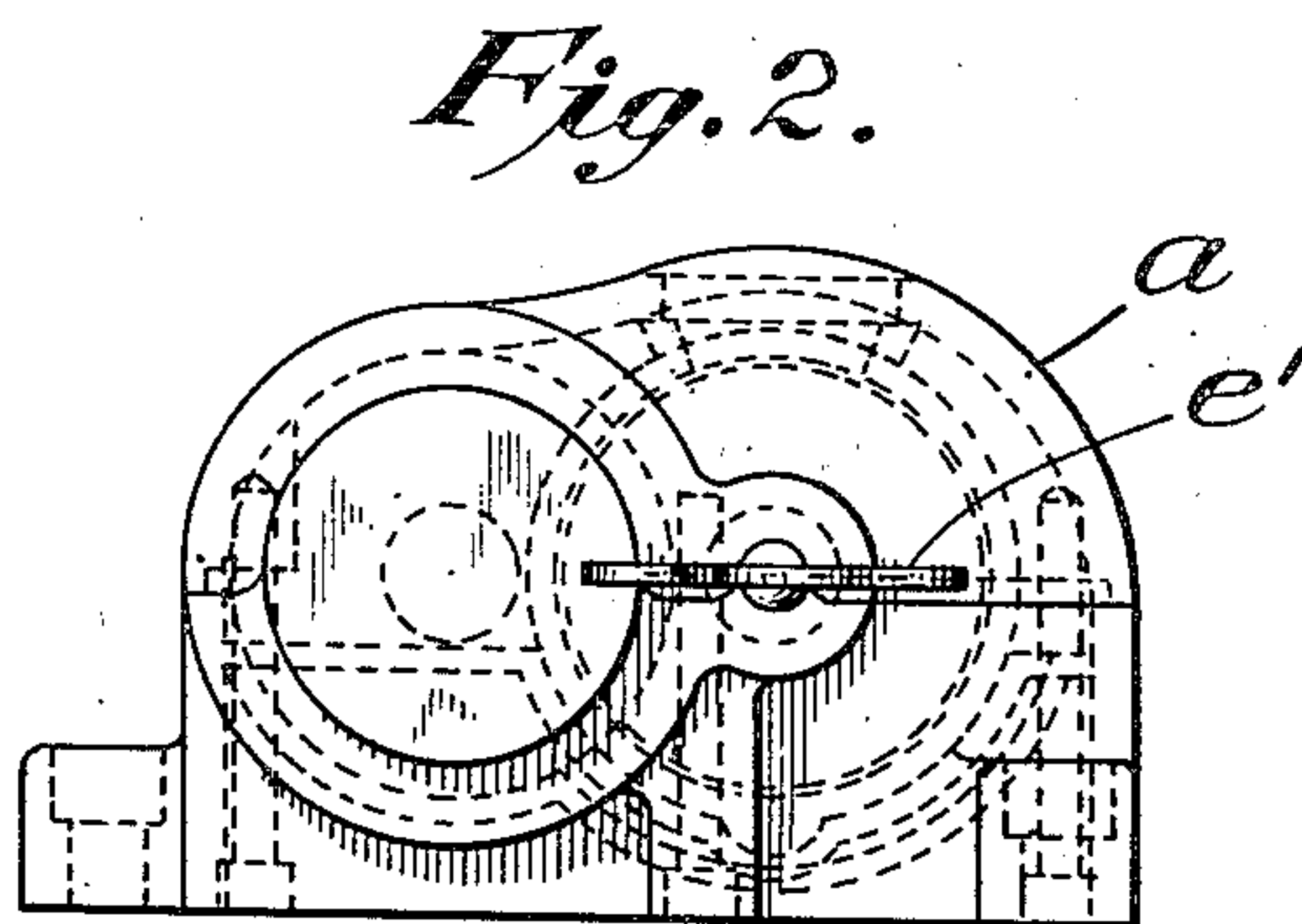
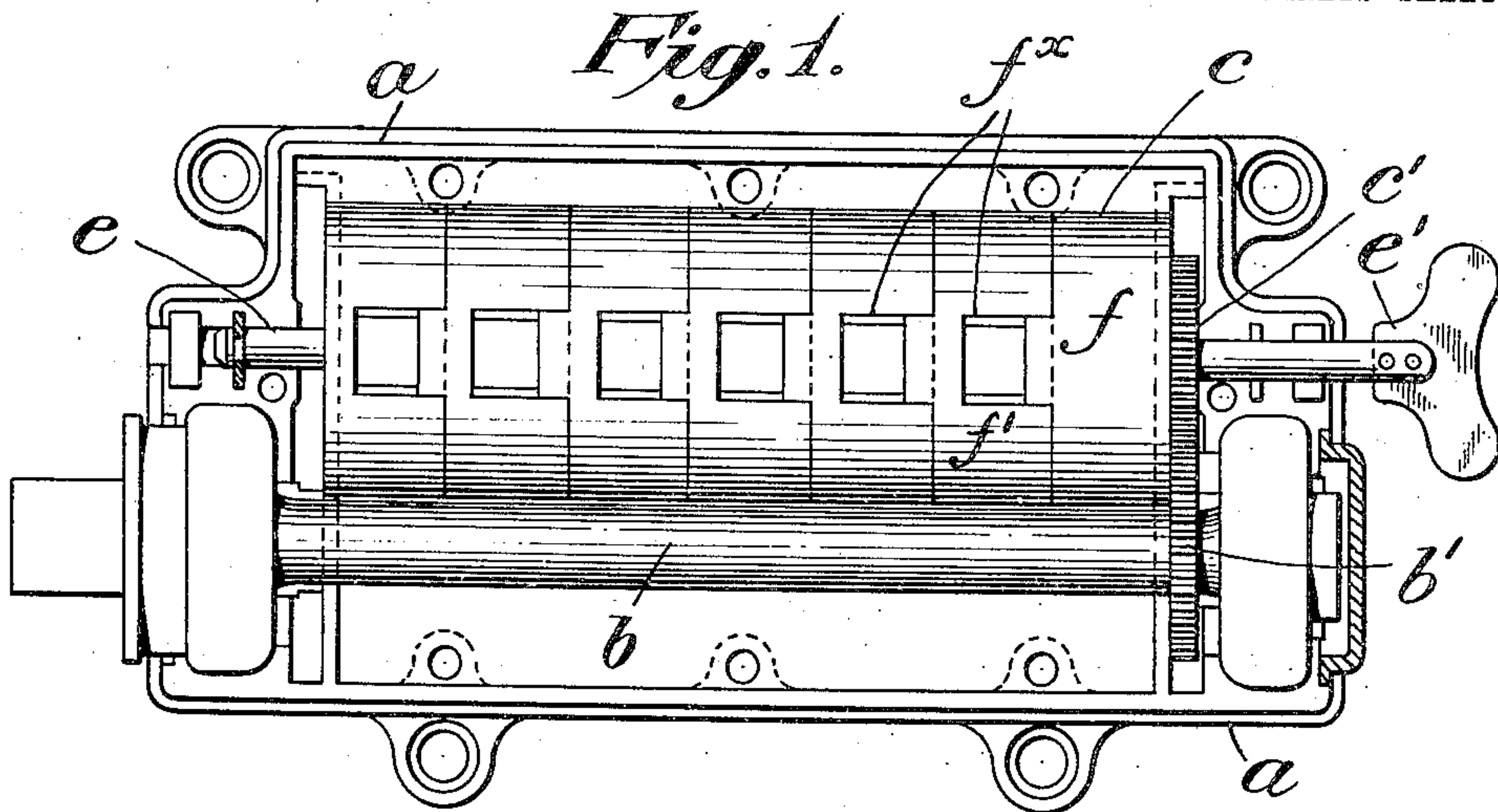
C. H. VEEDER.
COUNTER.

APPLICATION FILED JUNE 8, 1909.

950,546.

Patented Mar. 1, 1910.

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.

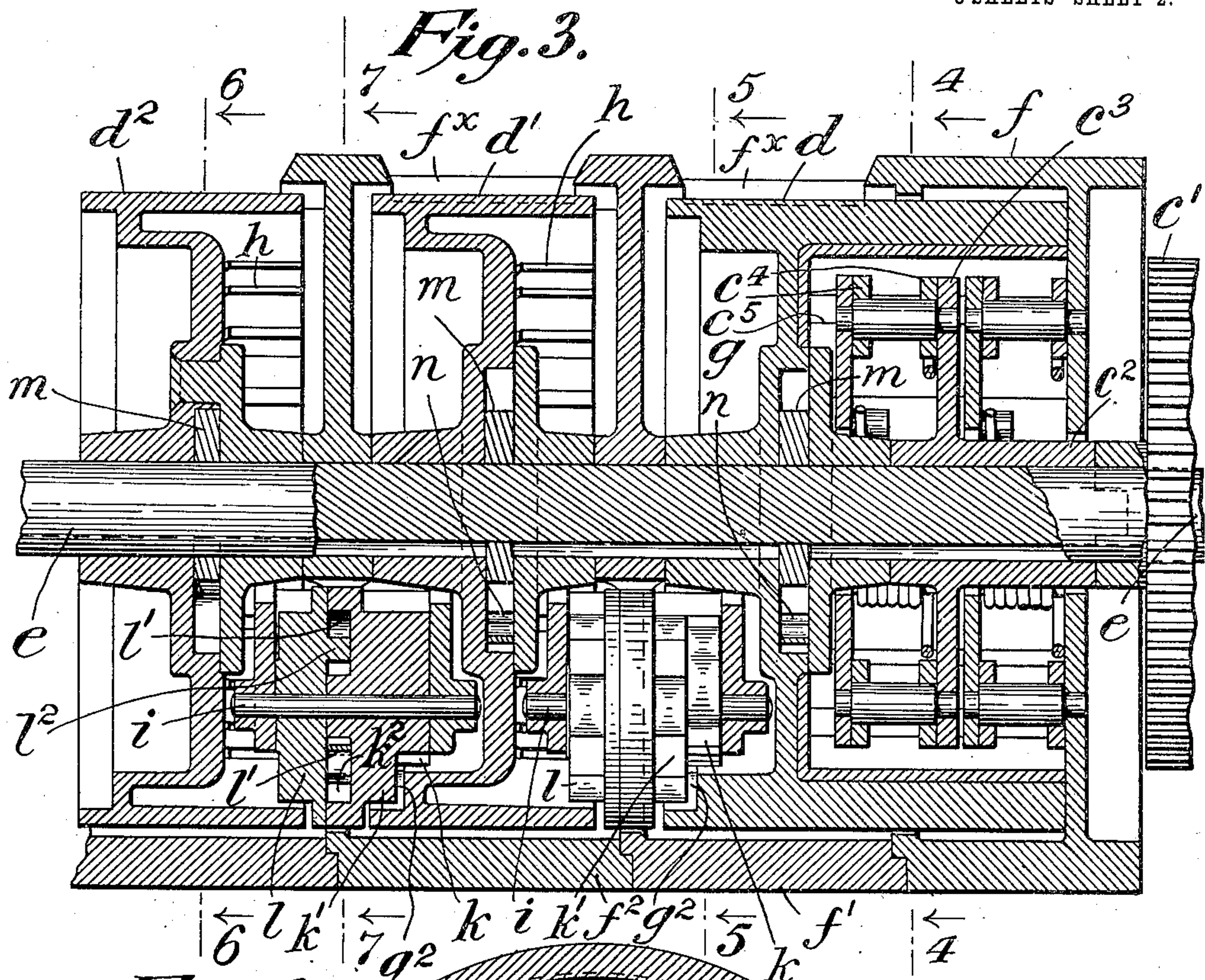
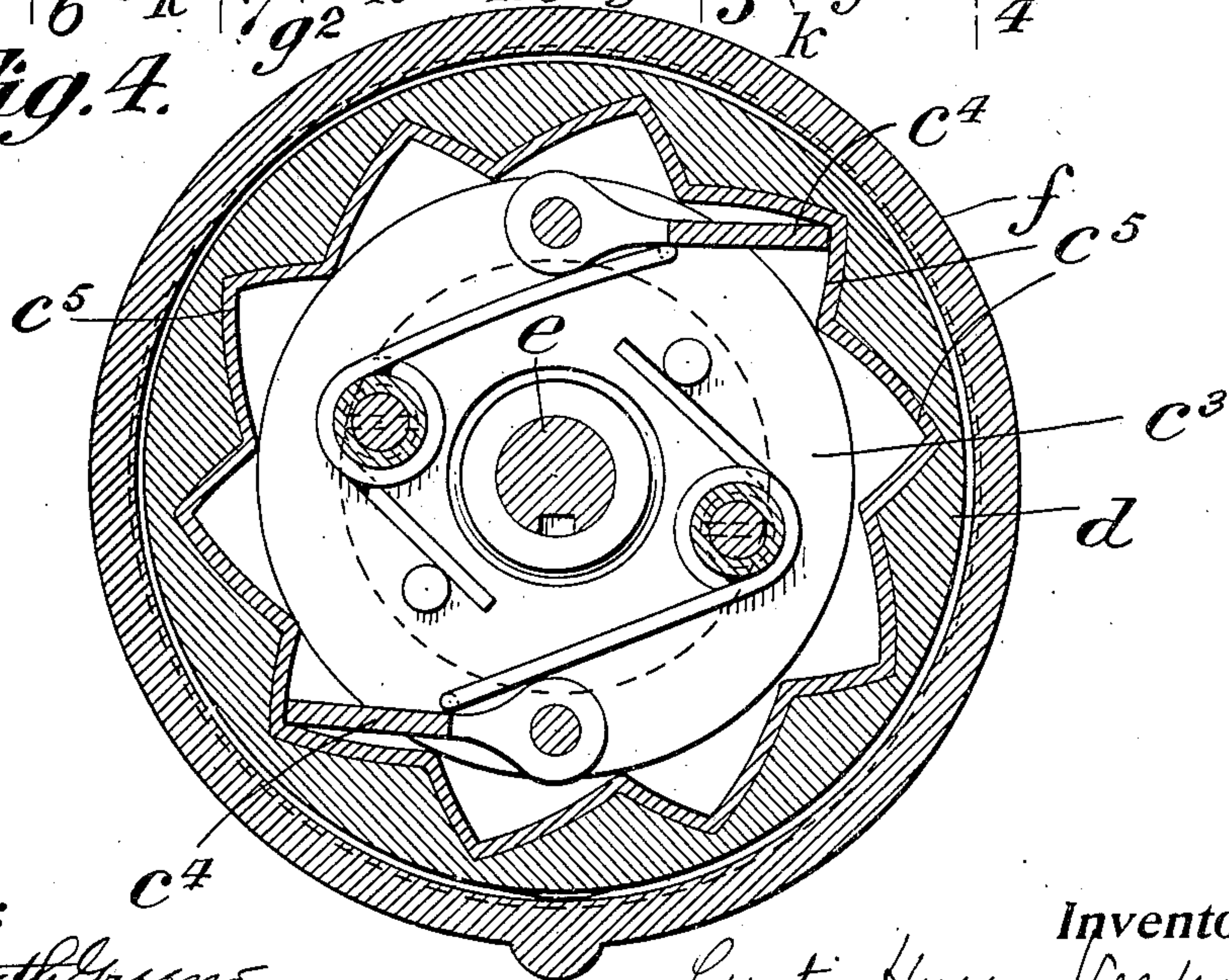


Fig. 4.



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3 SHEETS—SHEET 3.

Fig. 5.

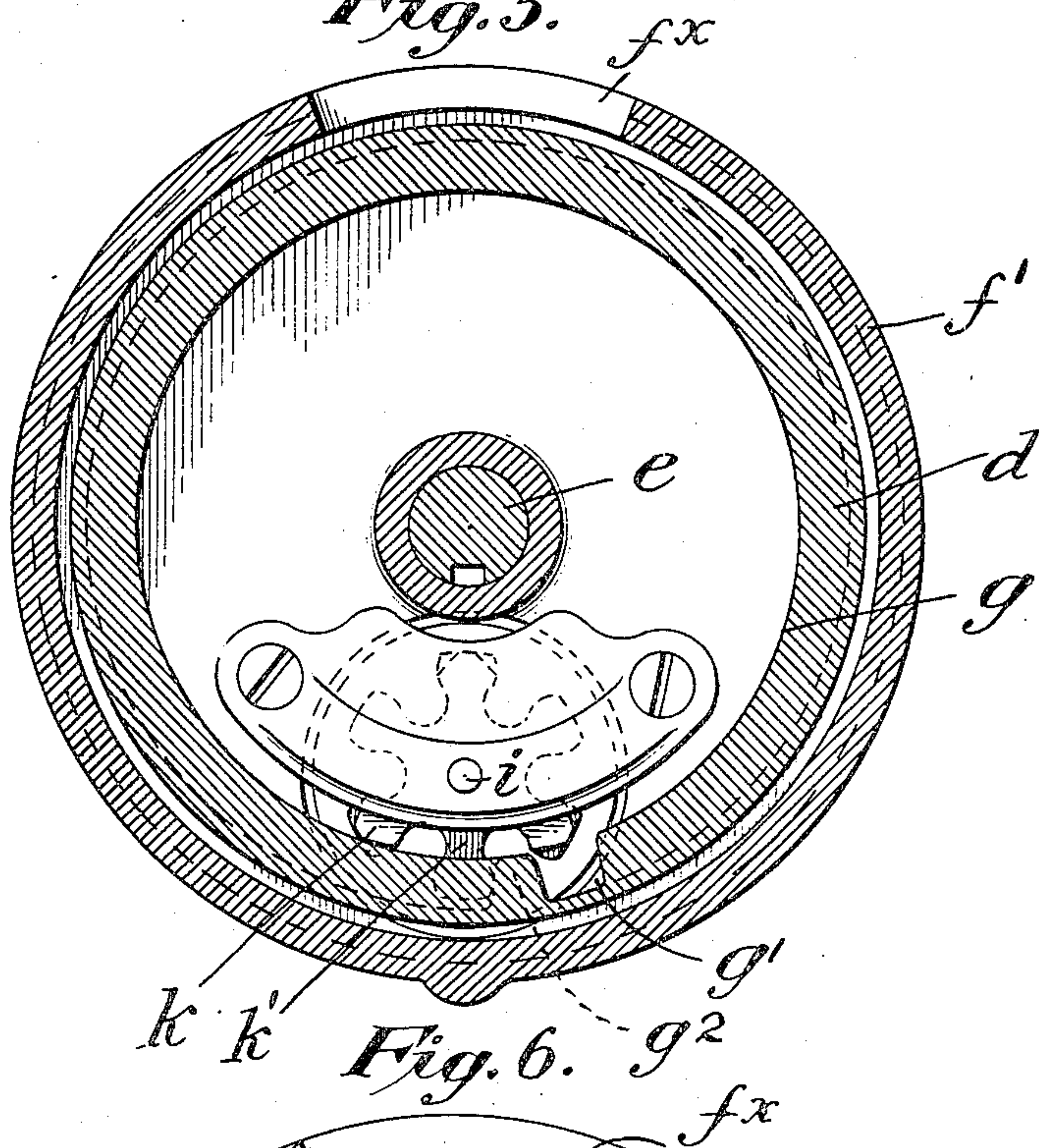
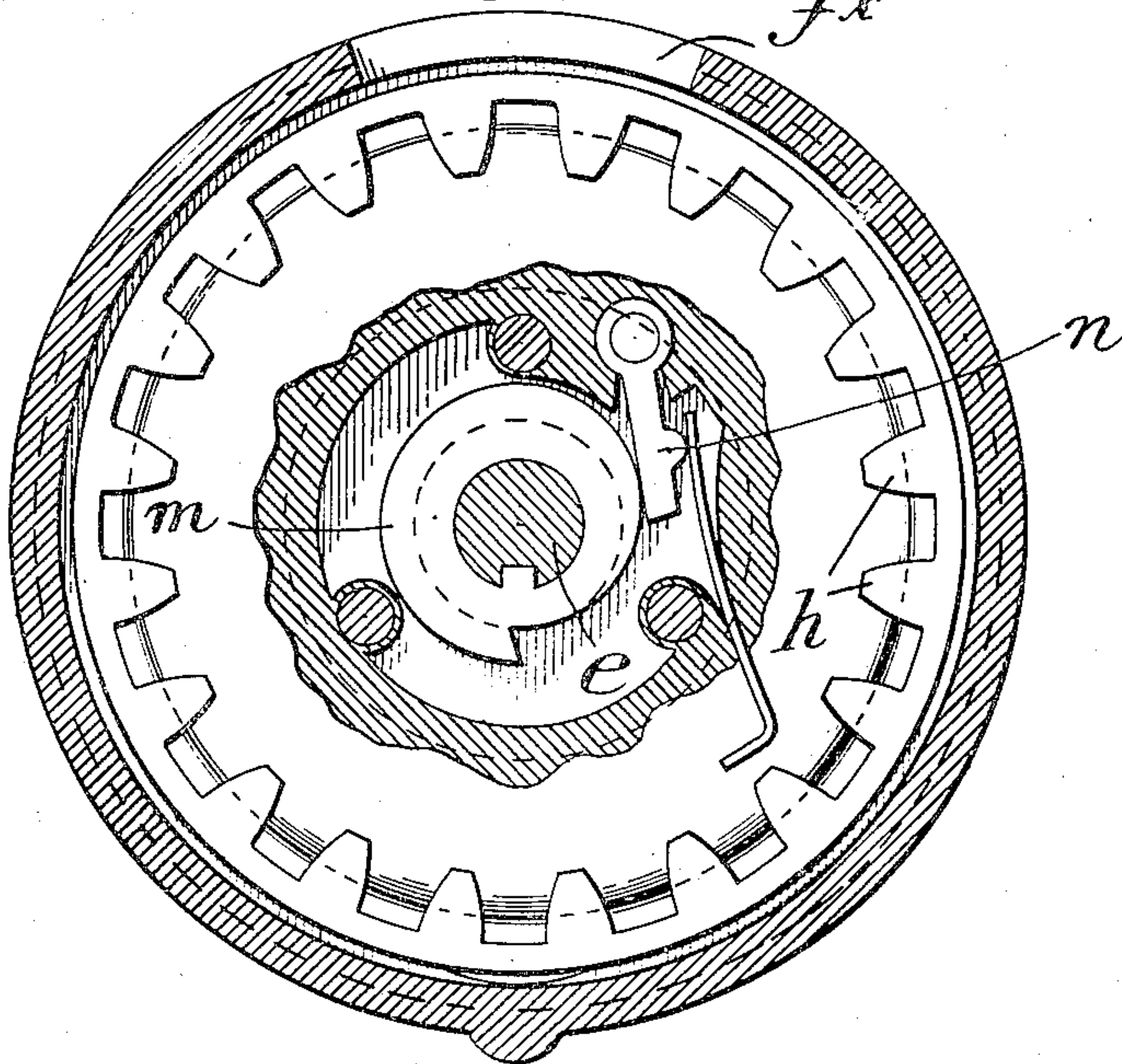


Fig. 6.



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UNITED STATES PATENT OFFICE.

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COUNTER.

950,546.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CURTIS HUSSEY VEEDER, a citizen of the United States, residing in the city of Hartford, in the State of Connecticut, have invented certain new and useful Improvements in Counters, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

10 This invention relates to counters or registers which are adapted to have their number wheels set back to zero from time to time and has for its object to provide improved devices to accomplish such setting back, which shall offer little resistance to the ordinary operation of the counter and shall not be liable to such interference between the working parts as to prevent the proper operation of the counter. The setting back of the number wheels generally involves, in some way, disconnection of the transmission mechanism by which the complete rotation of any number wheel in the series is made to effect a forward movement of the next wheel in the series. Various means have been devised for accomplishing such disconnection of the transmission mechanism during the setting back of the number wheels, but such means generally involved considerable complication in structure, uncertainty in operation, and liability to become "tied-up", so that the counter cannot operate. In accordance with the present invention, however, the result is accomplished by providing, in the transmission mechanism, two members which move together during the ordinary operation of the counter, while one of the members is free to move relatively to the other during the setting back of the number wheels. Preferably the transmitting pinion itself is made in two parts with a ratchet and pawl connection which compels movement of the two parts together during regular operation and permits movement, during the operation of setting back, of one of the parts with respect to the other part.

The invention will be more fully explained hereinafter with reference to the accompanying drawings, in which it is illustrated as embodied in a convenient and practical form, and in which—

50 Figure 1 is a plan view showing the counter in operative relation with a shaft, the rotations of which are to be counted or

registered. Fig. 2 is a view in end elevation, as seen from the right hand in Fig. 1. Fig. 3 is a view on a larger scale, partly in longitudinal, central section and partly in elevation, of the improved counter. Fig. 4 60 is a detail view in section on the plane indicated by the line 4—4 of Fig. 3, looking in the direction of the arrows. Fig. 5 is a detail view in section on the plane indicated by the line 5—5 of Fig. 3, looking in the direction of the arrows. Fig. 6 is a detail view in section on the plane indicated by the line 6—6 of Fig. 3, looking in the direction of the arrows. Fig. 7 is a detail partial view in section on the plane indicated by the line 7—7 of Fig. 3, looking in the direction of the arrows. 70

It will be understood that although the planes of section of Figs. 5, 6, and 7 are indicated in Fig. 3 as widely separated, this 75 is merely for clearness and that the several planes of section might be so located as to show the same transmitting mechanism.

In Figs. 1 and 2 a suitable casing *a* is shown as supporting a shaft *b*, the rotations 80 of which are to be counted or registered by the counter or register *c* which is also supported in the casing *a* and is actuated from the shaft *b* through suitable gearing *b'*, *c'*. Several number wheels *d*, *d'*, *d''*, &c., are 85 shown as mounted to rotate upon a shaft *e* which, in Figs. 1 and 2, is shown as having applied to it a key *e'* for resetting. The casing of the counter is shown as made up of a series of short cylindrical shells *f*, *f'*, 90 &c. which are suitably fitted together and, excepting the first, are suitably provided with sight openings, as at *f''*, through which the numbers on the peripheries of the number wheels *d* are exhibited. The gear wheel 95 *c'*, in the construction shown, is mounted to rotate upon the shaft *e* and drives a sleeve *c''* which, upon a flange *c'''*, carries spring pressed pawls *c''''*. The latter engage internal ratchet teeth *c'''''* (Fig. 4) of the first or 100 units number wheel *d*, movement in this manner being imparted from the shaft, the rotations of which are to be counted or registered, to the series of number wheels.

The details of construction thus far referred to are such as are in common use and, not being involved in the operation of the improved mechanism, except as hereinafter indicated, need not be described more particularly herein. Moreover, any other 110

means for imparting motion to the first number wheel of the series might be employed in place of the means which have been generally described above.

5 Each of the number wheels d, d', d^2 , &c. is mounted for rotation upon the shaft e and is suitably constructed to impart movement, through the transmitting mechanism, to the next preceding number wheel and to have
10 movement imparted to it through the transmitting mechanism from the next succeeding number wheel. As shown, each number wheel, as d , is chambered, as usual, in its left hand end to form an internal locking
15 ring g having a notch g' , and with teeth g^2 to cooperate with the transmitting gear. Each number wheel, as d', d^2 , &c., excepting the first wheel d , is also chambered, as usual, in its right hand end and formed with
20 an internal gear h for cooperation with the transmitting gear. Except as hereinafter indicated, the transmitting gear is formed as usual, being mounted for rotation upon a shaft i carried by suitable hangers, and
25 having a three-toothed locking pinion k to cooperate with the locking ring g , a six-toothed driving pinion k' cooperating with the driving teeth g^2 of the preceding number wheel, and a pinion l which meshes with the
30 internal gear h of the succeeding number wheel. The transmitting gear, however, whether made in the form shown or in some other suitable form, comprises two independent members, one of such members in
35 the present construction consisting of the pinions k and k' , and the other of such members consisting of the pinion l . These two independent members are arranged to be coupled so as to move as one piece during
40 the ordinary operation of the counter, while the driven member is permitted to move independently of the other during the operation of setting back the number wheels. Any convenient means for thus coupling the
45 two members may be employed. As shown in Figs. 3 and 7, the member k, k' , is chambered, as at k^2 , in its end next the member l , and is formed with internal ratchet teeth, as at k^3 , which are adapted to be engaged
50 by spring pawls l' mounted on a flange l^2 of the member l .

The supporting shaft e , in the construction shown, is made use of as a resetting shaft and a pawl and ratchet coupling is ar-
55 ranged between such shaft and each number wheel. As shown in the drawings, particularly in Figs. 3 and 6, in order to reduce strain on the pawl and to avoid wear on the shaft, there is keyed upon the shaft in proper
60 position in relation to the corresponding number wheel a single toothed ratchet wheel or cam m adapted to be engaged by a spring pressed pawl n carried by the corresponding number wheel. During the ordinary opera-
65 tion of the counter, the pawl n slips idly

over the cam or single toothed ratchet wheel m , but when the shaft e is rotated in the same direction the pawl will engage the ratchet wheel.

It will now be understood that in the op- 70
eration of the counter each number wheel effects, in the matter indicated, the step by step forward movement of the next succeeding number wheel, the transmitting mechanism then operating like the ordinary solid 75
transmitting gear. It will also be seen that when the number wheels are to be set back to zero, the shaft e is rotated in the same direction of rotation as that of the number wheels during the ordinary operation of the 80
counter. In such rotation of the shaft it will, through the toothed disks m and the pawls n , pick up the number wheels as the tooth of the disk m engages the corresponding pawl and will rotate each number wheel 85
in a forward direction so long as the rotation of the shaft is continued. Since the pawls n are similarly placed on the several number wheels, each number wheel will be rotated more or less, according to the posi- 90
tion in which it was left at the end of the ordinary operation of the counter, until all of the number wheels show the same figure at the sight openings and then all of the number wheels may be rotated together until 95
the zeros on the number wheels stand at the sight openings. During this movement of each number wheel, the corresponding pinion l , being now the driven pinion instead of the driving pinion, will rotate freely with re- 100
spect to the member k, k' , the pawls l' slipping idly over the internal ratchet teeth k^3 without disturbing the member k, k' , which will be held from rotation by the locking ring g , and inasmuch as no wheel is turned 105
beyond the zero point, no movement of the member k, k' will be occasioned by the movement of the corresponding number wheel.

It will be obvious that the details of construction and arrangement may be varied as 110
required by the construction of the counter and that the invention, therefore, is not limited to the details of construction shown and described herein.

I claim as my invention: 115

1. In a counter, the combination with the number wheels, of transmitting mechanism between successive number wheels, such transmitting mechanism comprising two independent members and coupling devices 120
whereby one member is driven from the other during the ordinary operation of the counter and is permitted to move independently of the other during the setting back of the number wheels. 125

2. In a counter, the combination with the number wheels, of transmitting mechanism for transmitting movement from each number wheel to the next succeeding number wheel, such transmitting mechanism com- 130

prising a pinion engaging the first number wheel of each pair and a pinion engaging the succeeding number wheel of each pair, and coupling devices whereby the last named pinion is driven from the first named pinion during the ordinary operation of the counter and is permitted to move independently of the first named pinion during the setting back of the number wheels.

10 3. In a counter, the combination with the number wheels, of transmitting mechanism for transmitting movement from each number wheel to the next succeeding number wheel, such transmitting mechanism comprising a pinion engaging the first number wheel of each pair and a pinion engaging the succeeding number wheel of each pair, and a ratchet and pawl connection between said pinions, whereby the last named pinion is driven from the first named pinion during the ordinary operation of the counter and is permitted to move independently of the first named pinion during the setting back of the number wheels.

25 4. In a counter, the combination with the number wheels, of transmitting mechanism between successive number wheels, such transmitting mechanism comprising two independent members, coupling devices whereby one member is driven from the other during the ordinary operation of the counter and is permitted to move independently of the other during the setting back of the number wheels, and means independent of the transmitting mechanism to rotate the wheels to their zero positions.

35 5. In a counter, the combination with a shaft and number wheels mounted to rotate upon said shaft, of transmitting mechanism between successive number wheels, such transmitting mechanism comprising two independent members and coupling devices whereby one member is driven from the other during the ordinary operation of the

counter and is permitted to move independently of the other during the setting back of the number wheels, and means intermediate the shaft and the number wheels whereby through the rotation of the shaft the number wheels are set to their zero positions.

6. In a counter, the combination with a shaft and number wheels mounted to rotate upon said shaft, of transmitting mechanism between successive number wheels, such transmitting mechanism comprising two independent members and coupling devices whereby one member is driven from the other during the ordinary operation of the counter and is permitted to move independently of the other during the setting back of the number wheels, and a pawl and ratchet mechanism between each number wheel and the shaft whereby through rotation of the shaft all of the number wheels are set to their zero positions.

7. In a counter, the combination of a shaft, number wheels mounted for rotation on the shaft, toothed wheels mounted on the shaft to rotate therewith in operative relation with the number wheels respectively, pawls carried by the number wheels and adapted to engage said toothed wheels respectively, and transmitting mechanism between successive number wheels, such transmitting mechanism comprising two independent members and coupling devices whereby one member is driven from the other during the ordinary operation of the counter and is permitted to move independently of the other during the setting back of the number wheels.

This specification signed and witnessed this 1st day of June A. D., 1909.

CURTIS HUSSEY VEEDER.

Signed in the presence of—

AMASA TROWBRIDGE,
E. BARRIE SMITH.