

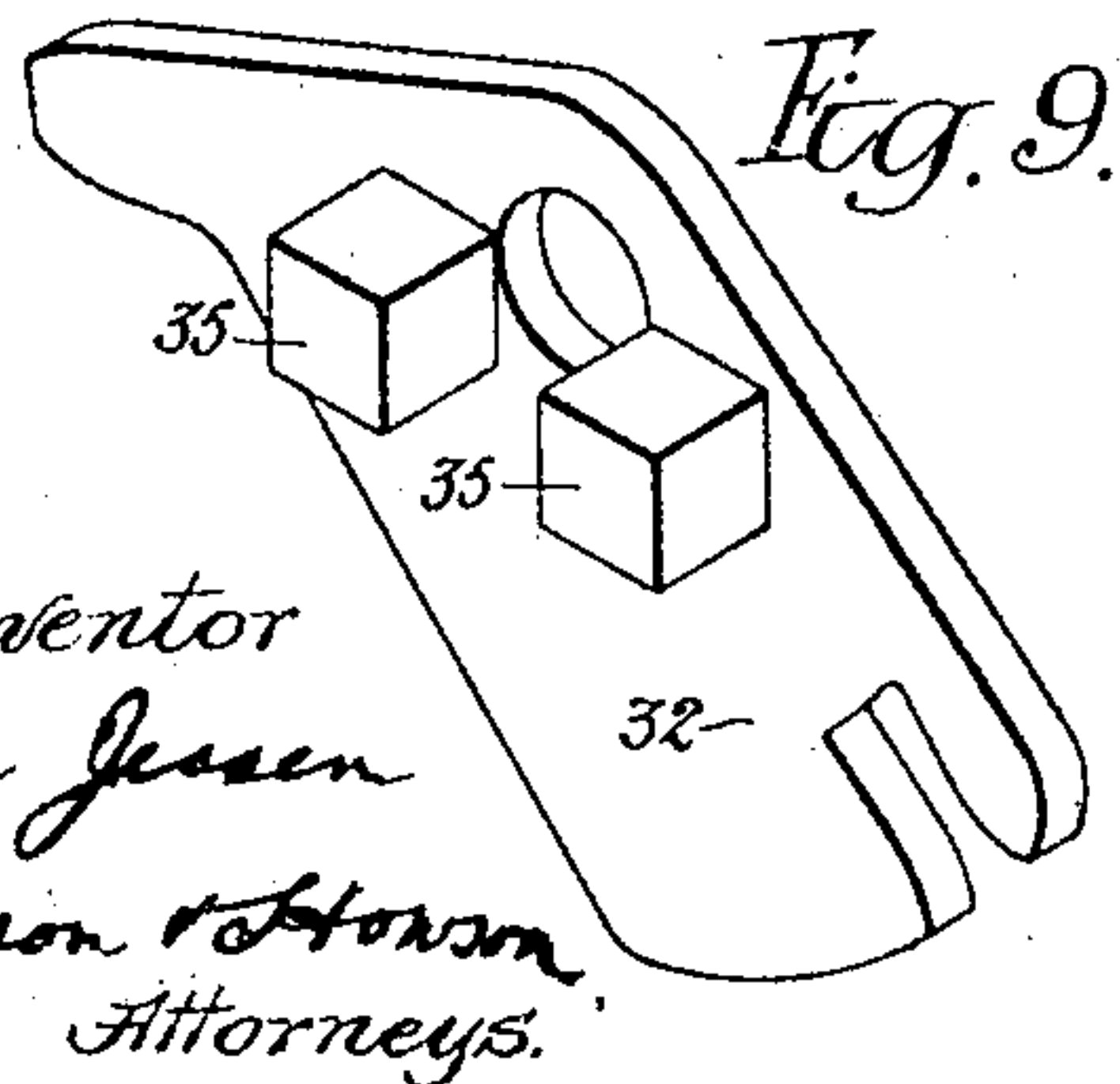
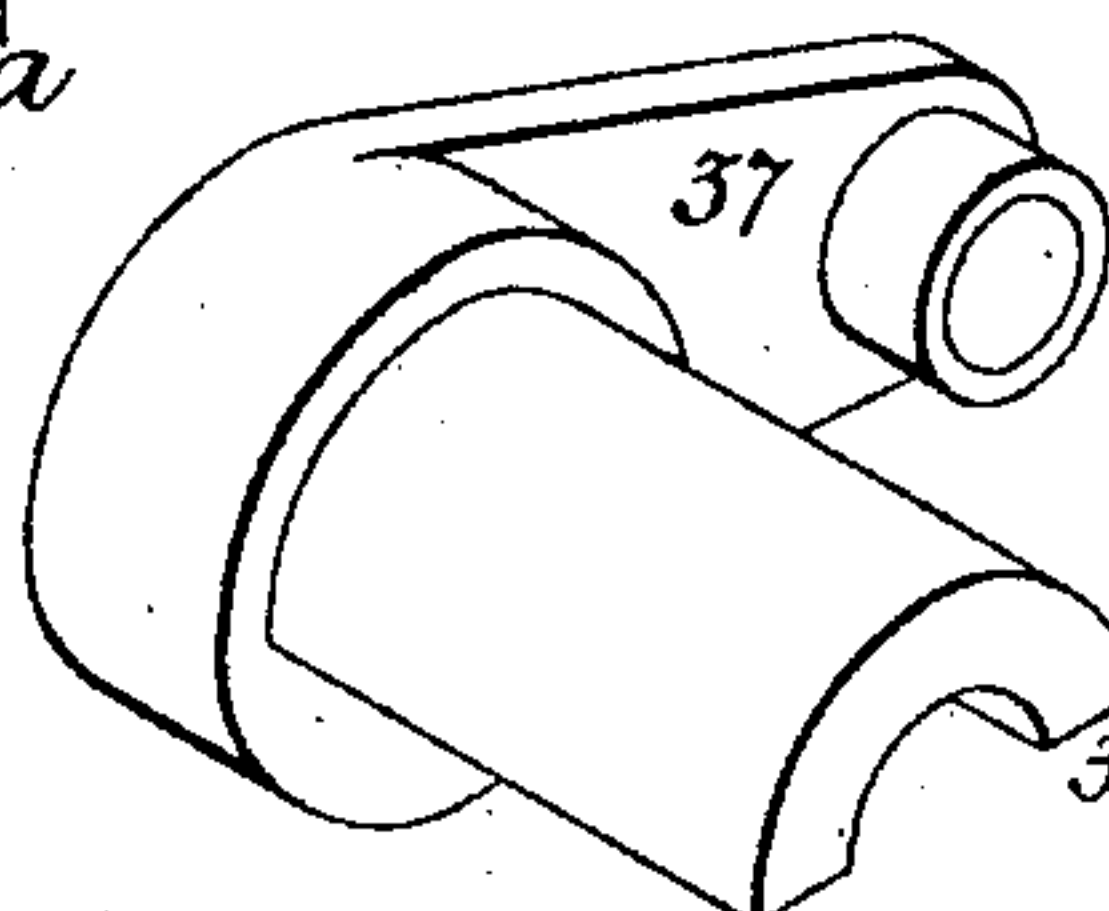
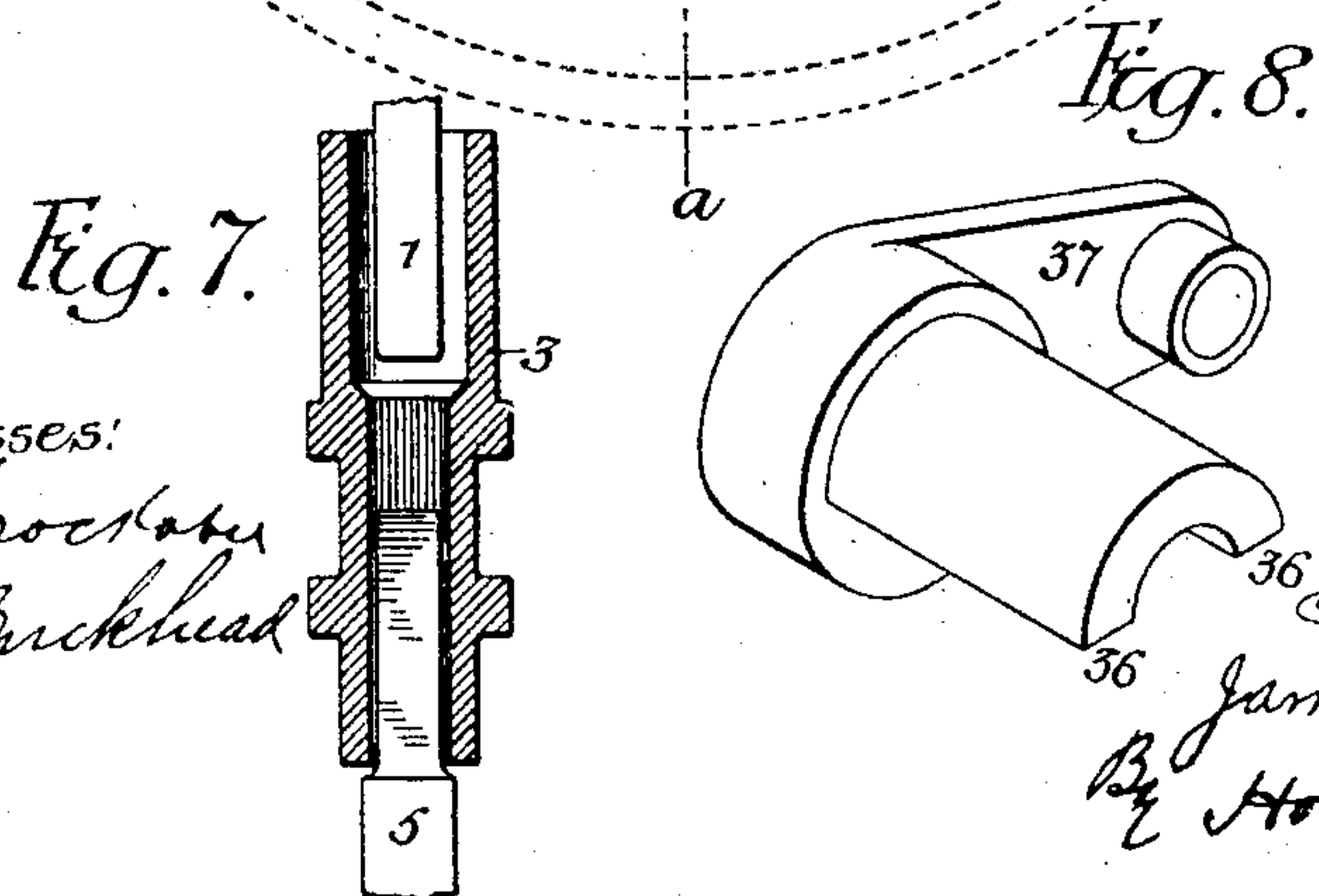
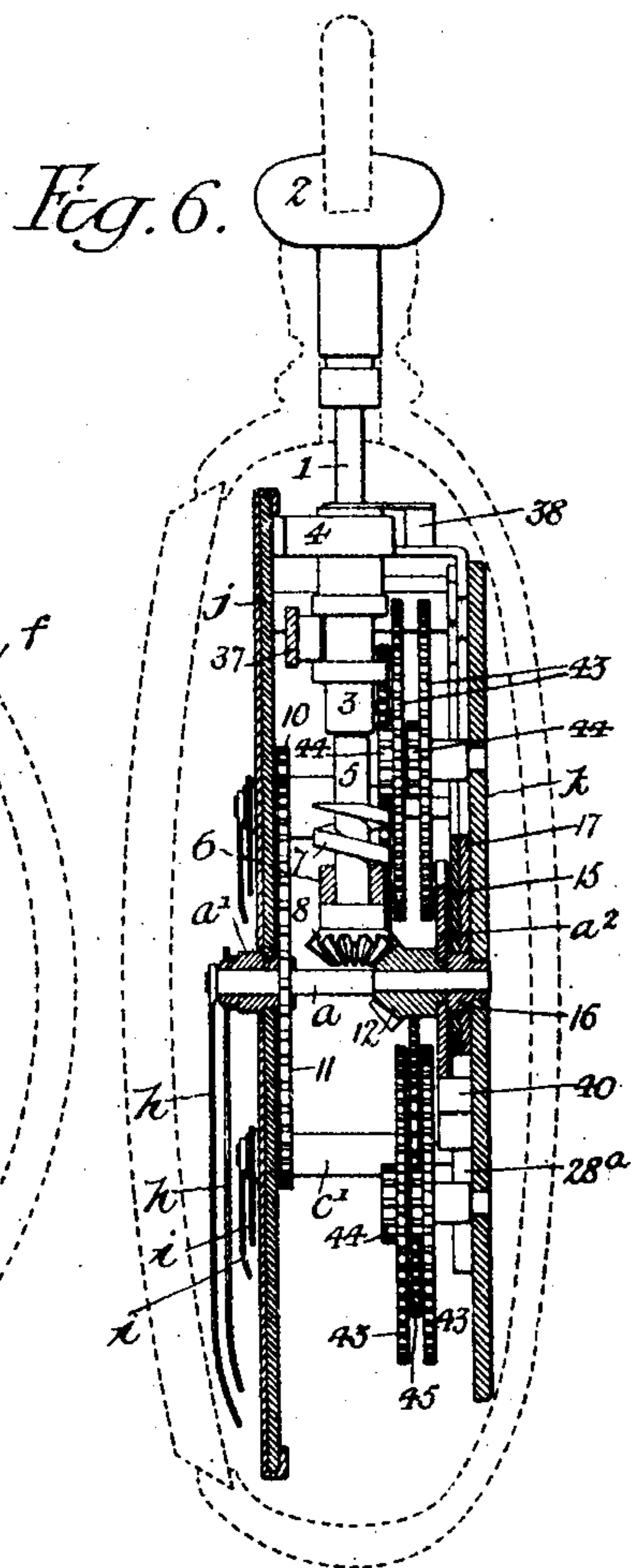
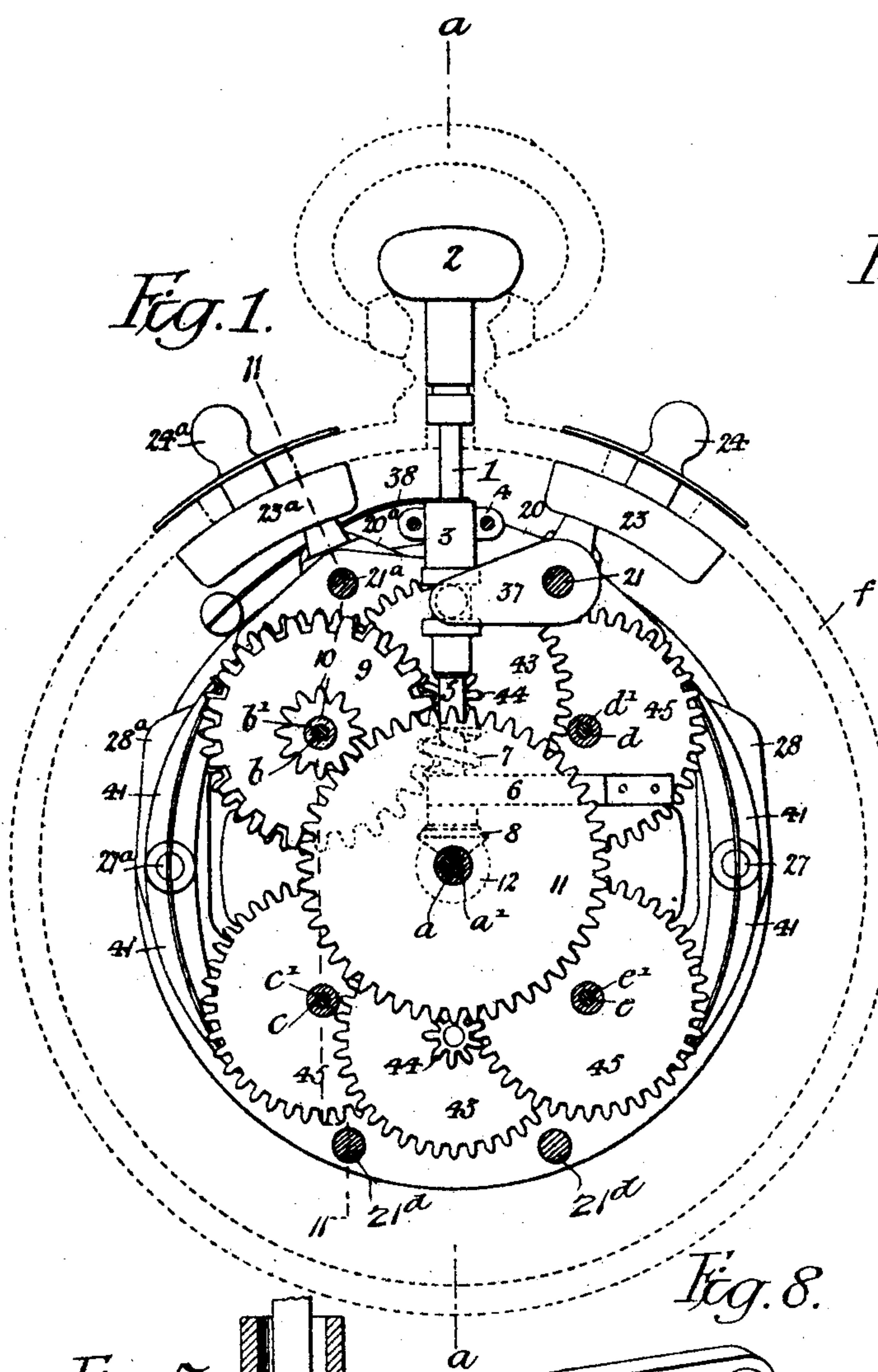
No. 798,903.

PATENTED SEPT. 5, 1905.

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APPLICATION FILED AUG. 18, 1903.

6 SHEETS—SHEET 1.



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6 SHEETS—SHEET 2.

Fig. 2.

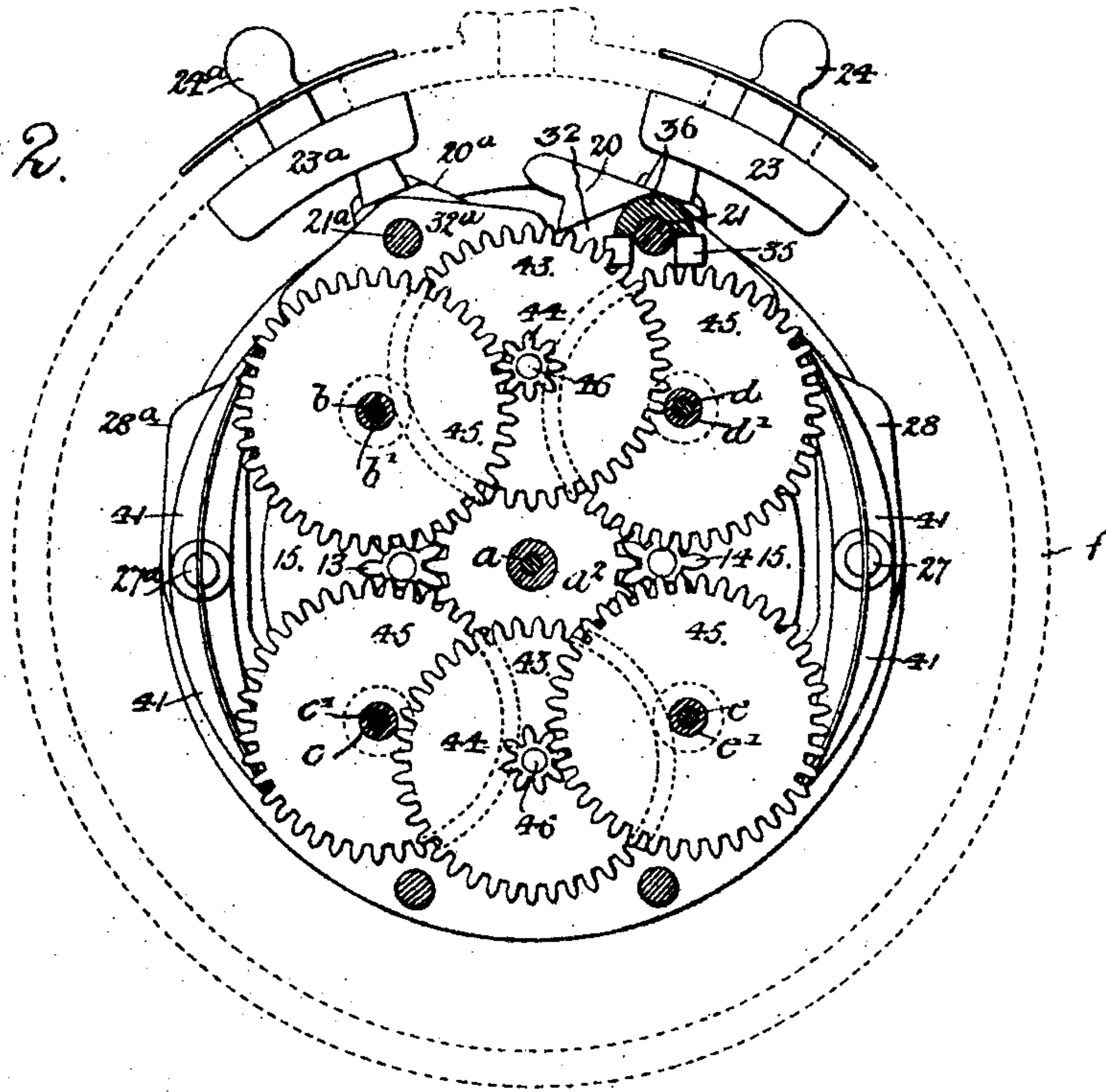
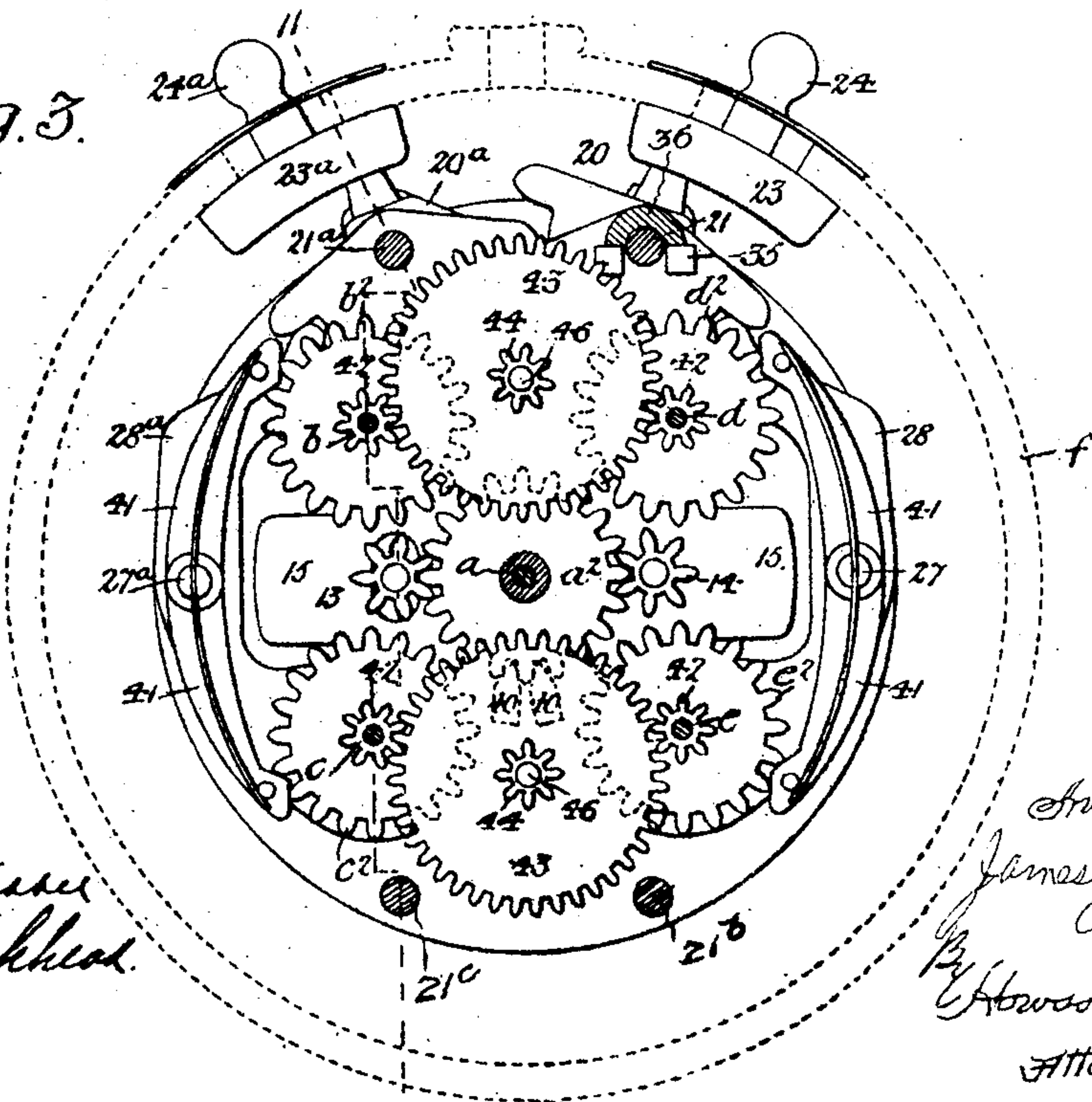


Fig. 3.



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Fig. 4.

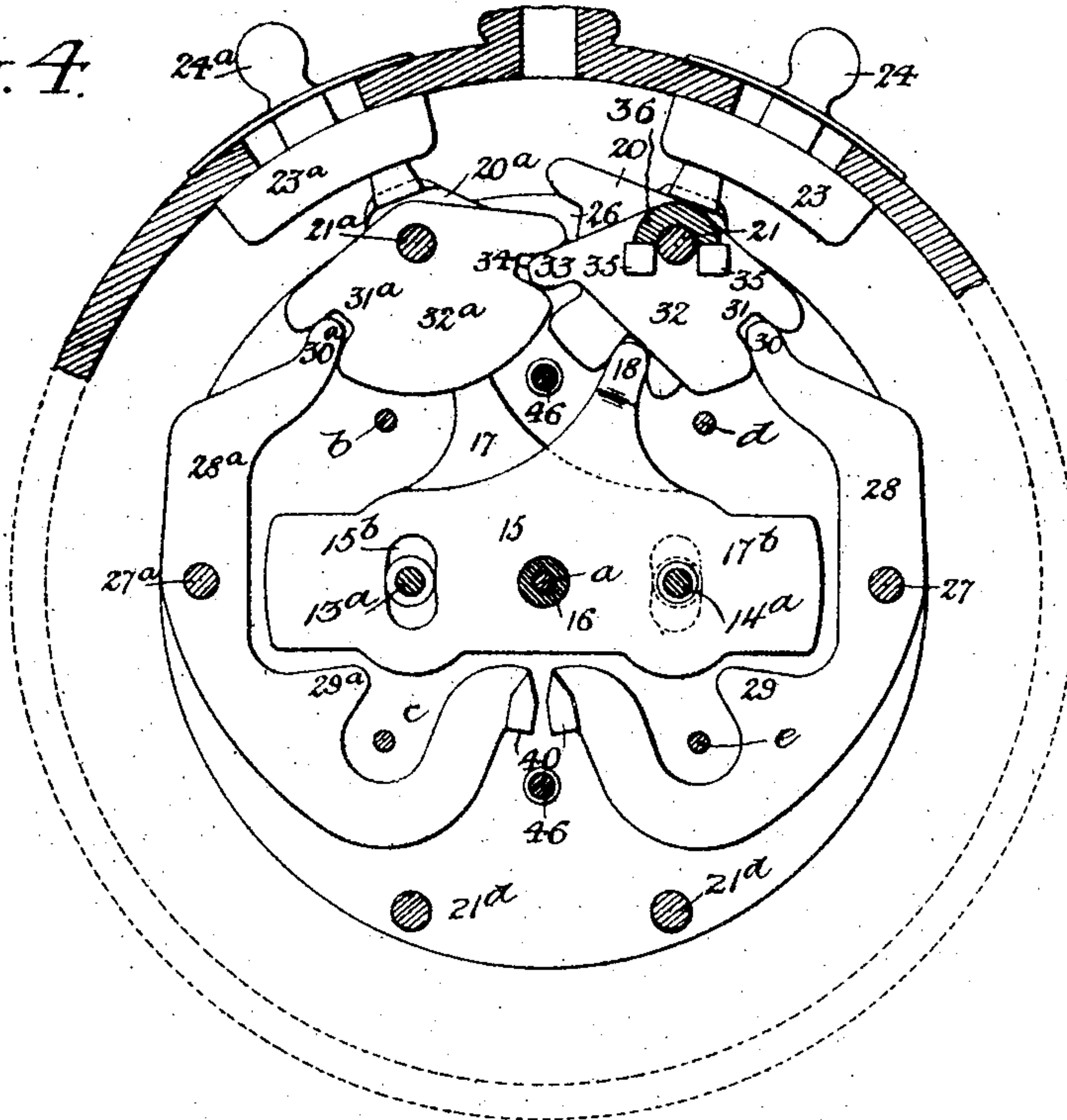
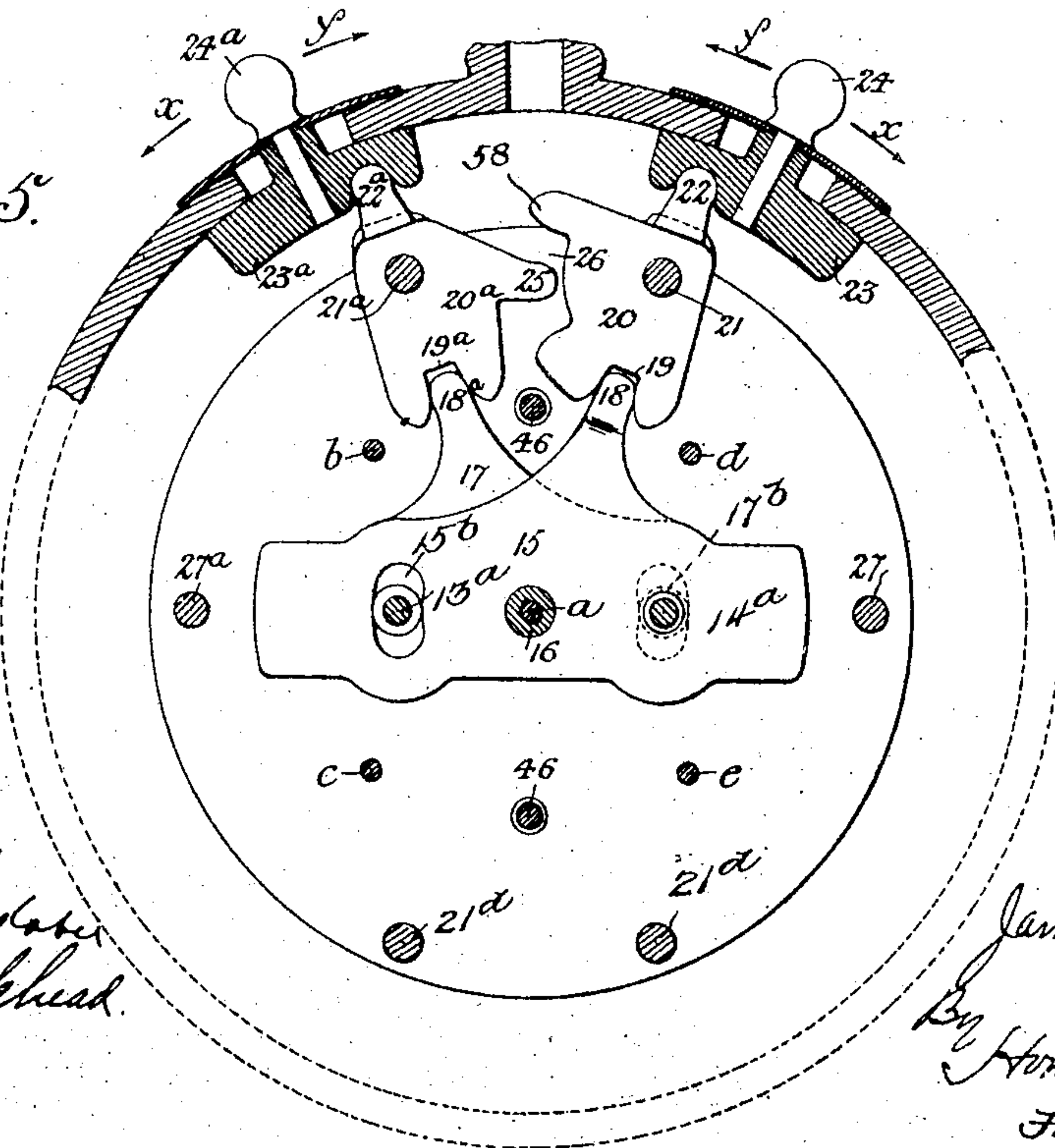


Fig. 5.



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6 SHEETS—SHEET 5.

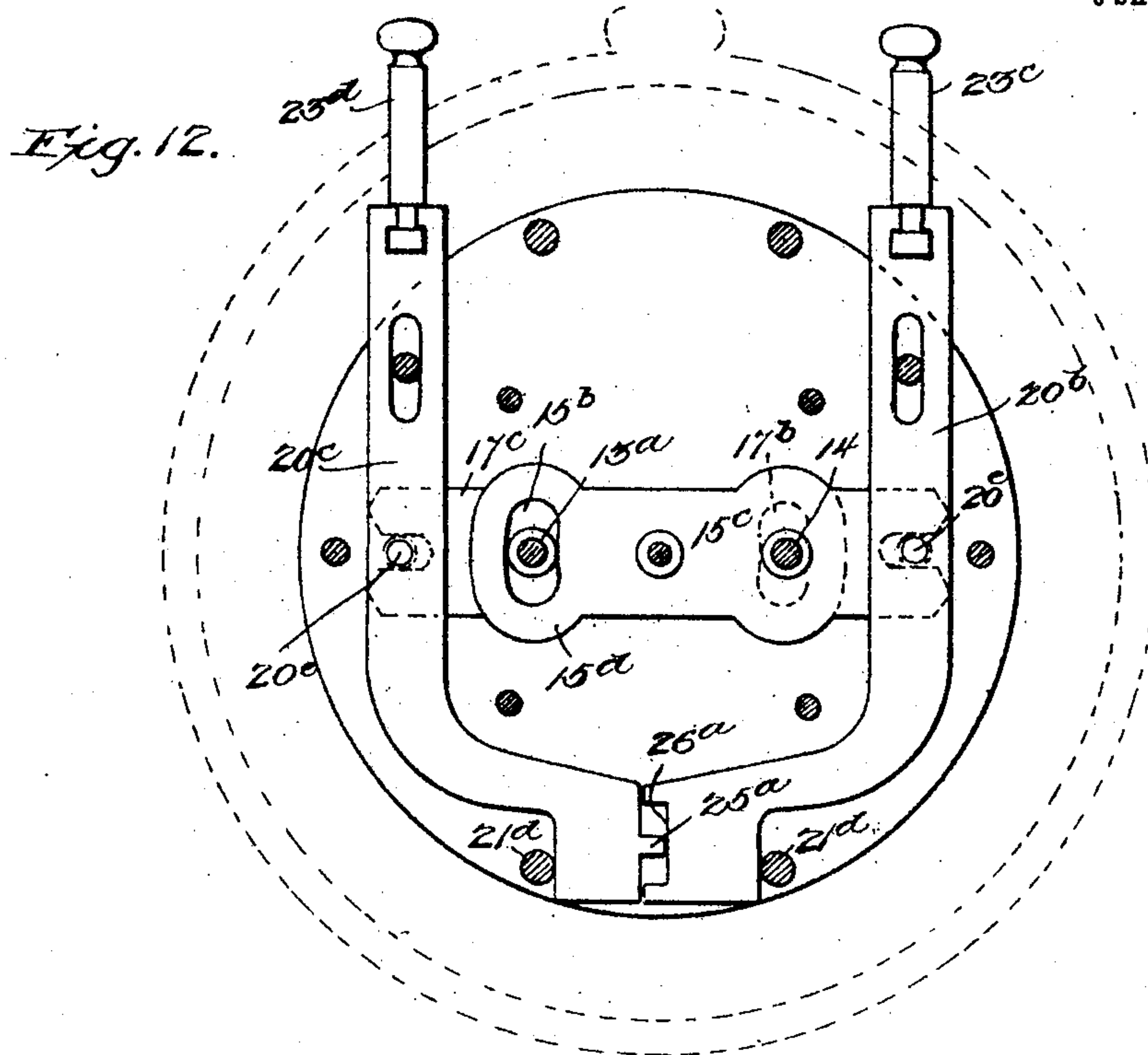
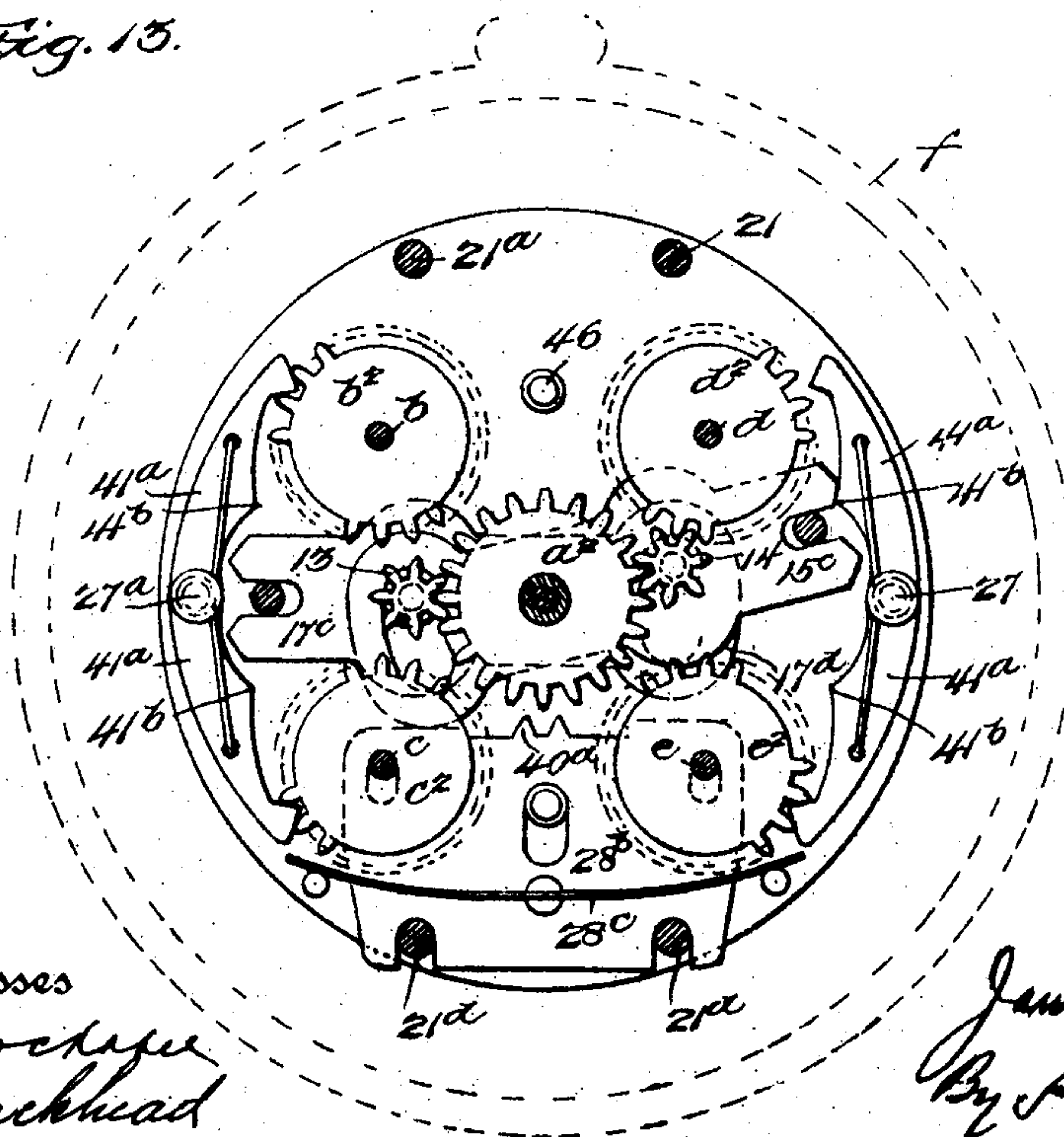


Fig. 13.



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6 SHEETS—SHEET 6.

Fig. 14.

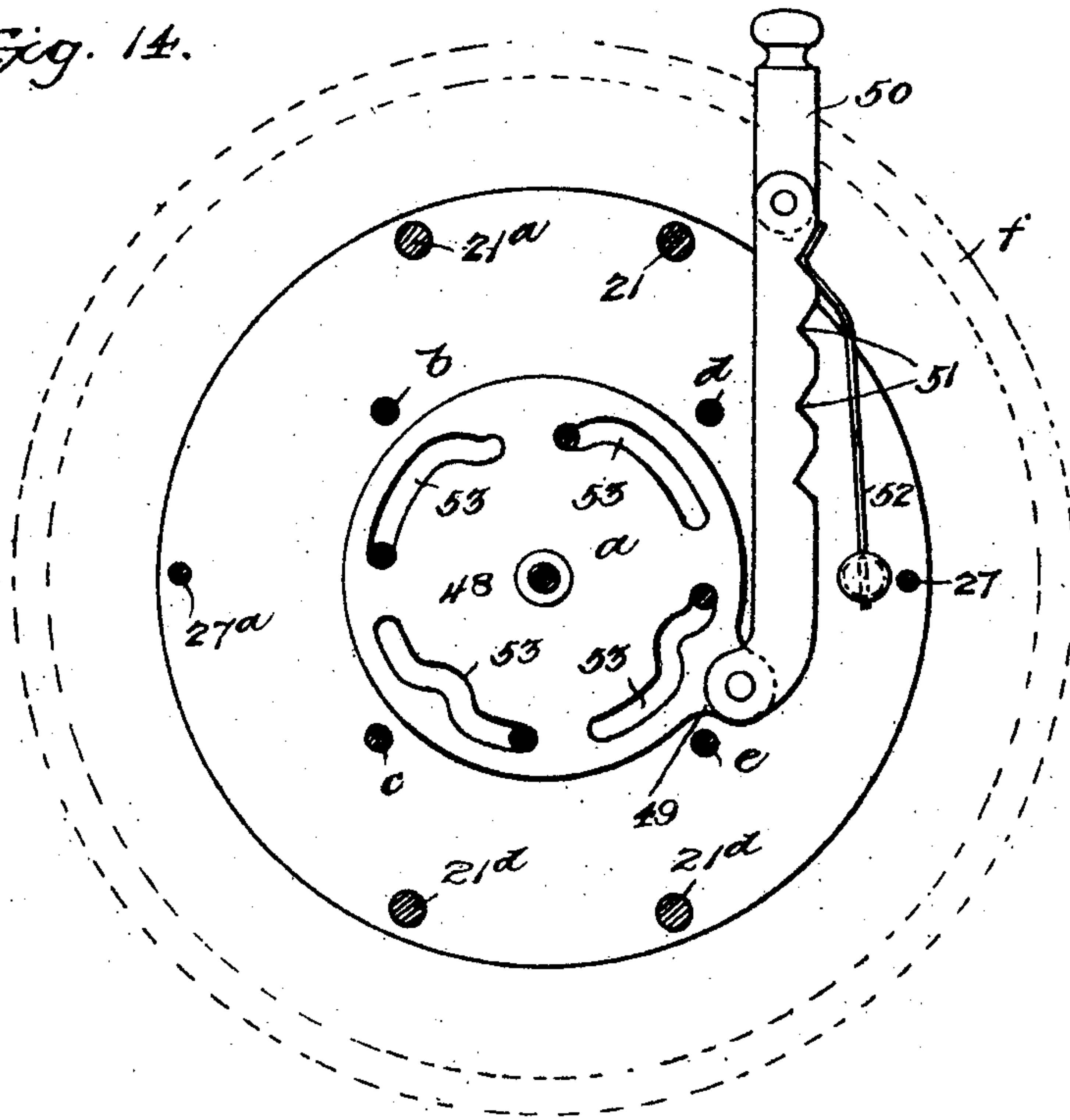
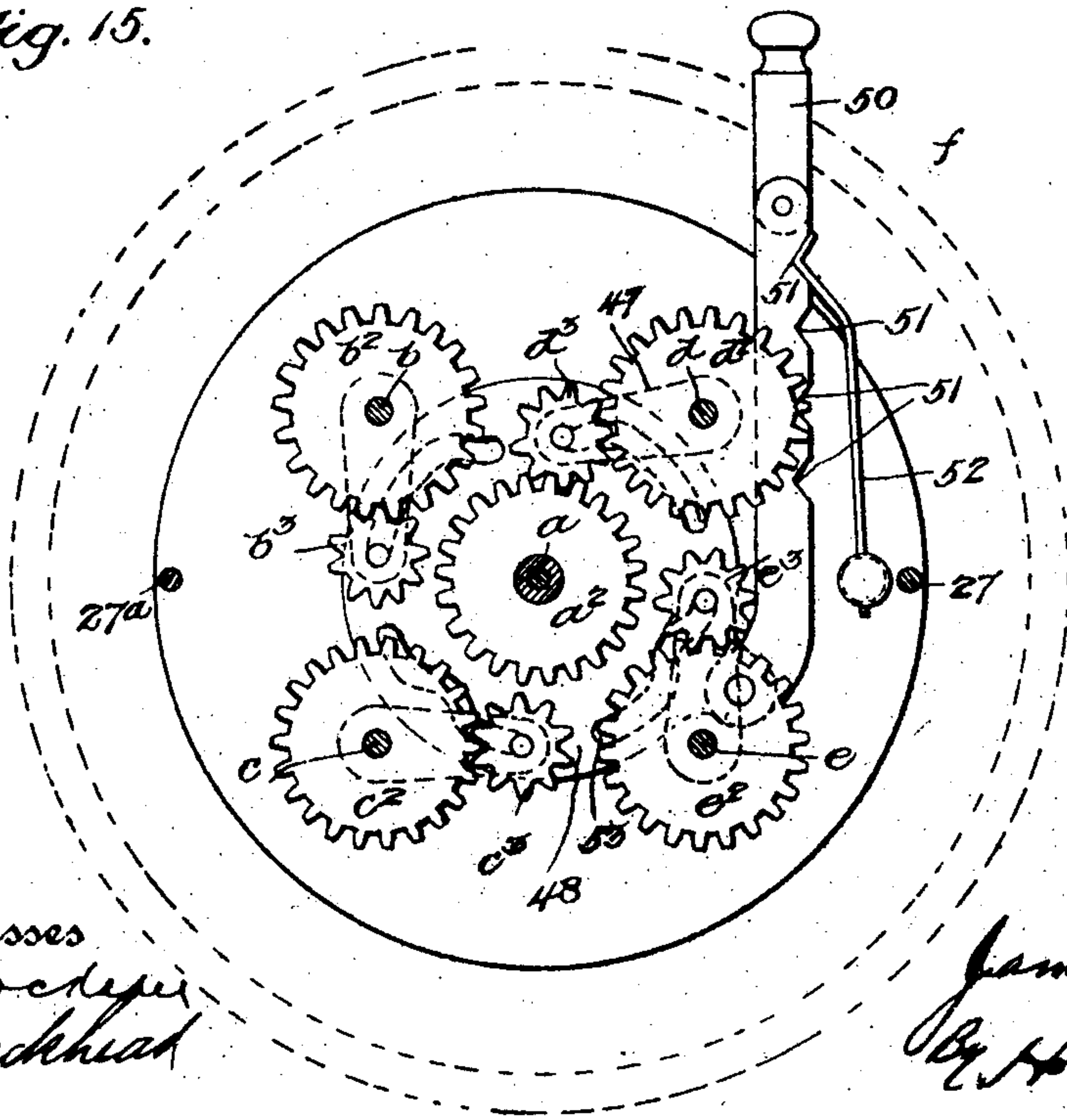


Fig. 15.



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UNITED STATES PATENT OFFICE.

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REGISTER.

No. 798,903.

Specification of Letters Patent.

Patented Sept. 5, 1905.

Application filed August 18, 1903. Serial No. 169,928.

To all whom it may concern:

Be it known that I, JAMES JESSEN, a citizen of the United States, and a resident of the city of Minneapolis, county of Hennepin, State of Minnesota, have invented certain new and useful Improvements in Registers, of which the following is a specification.

My invention consists of certain improvements in the registering device forming the subject of Letters Patent No. 668,859, granted February 26, 1901, and No. 714,745, granted December 2, 1902, to Henry R. Richardson.

My improvements relate especially to a register of the general type shown in the latter of the above-cited patents; and the objects of the invention are to simplify the construction of the device by reduction of the number of parts and by simplifying the form of the said parts, and thereby to cheapen the cost of the same, and also to render the device more acceptable than before in many respects, among which may be mentioned the following: first, the facility for turning the indicating pointers or hands either forwardly or backwardly, so as to permit of correction in case a hand has been moved too far forwardly in the first instance; second, preventing accidental registry by maintaining the indicating hands or pointers of all of the dials normally out of connection with the operating device or maintaining the latter normally locked against movement, so that accidental or unintended movement of the latter cannot affect any of the pointers, movement of either one of the pointers requiring a positive and definite preliminary adjustment of some part of the mechanism in order to connect said dial-pointer with the operating device therefor; third, preventing registry of an item upon a wrong dial by the turning of more than one dial at one registering movement, such as is possible if some or all of the dials are normally in connection with the operating device; fourth, the operation of all of the pointers by manipulation of a single central stem, which is more convenient than the separate stems heretofore employed and which is so geared to the various indicator hands or pointers that the movement of the latter can be effected with but slight effort.

In the accompanying drawings, Figure 1 is a view of my improved register with the dial removed. Figs. 2, 3, 4, and 5 are like views,

but showing various elements of the gearing or other operating mechanism successively removed in order to illustrate the construction and relation to each other of parts which would otherwise be hidden. Fig. 6 is a view, partly in side elevation and partly in transverse section on the line *a a*, Fig. 1, this view also showing the dial-plate and by dotted lines the casing in which the mechanism is intended to be placed. Fig. 7 is a detail in section of the clutch. Figs. 8 and 9 are perspective views of other parts of the same. Fig. 10 is a similar view to Fig. 4, showing the position of the parts when unlocked. Fig. 11 is a vertical section of the machine on the line 11 11, Figs. 1 and 3. Figs. 12 and 13 are views illustrating a certain modification of my invention, and Figs. 14 and 15 another modification.

The register is similar to that of Patent No. 714,745 in the respect that it has a large or main dial *j*, with two sets of graduations and a pointer *h* for each, and a series of separate or subordinate dials, each of them furnished with two sets of graduations and a pointer *i* for each, the main or large dial being a totaling-dial and the smaller dials being each intended for a certain class of expenditure. I have not, therefore, considered it necessary to illustrate the face of the dial, as the same will be simply a reproduction of that shown in Fig. 1 of Patent No. 714,745. The dial-plate *j* and the back plate *k* are spaced and secured together by studs 21 21^a 27 27^a 21^d, &c.

It will be sufficient for a proper understanding of my present invention to refer to the fact that in my present drawings *a a'* represent, respectively, the spindles for the large or "units" pointer or indicator-hand and for the small or "multiple" pointer or indicator-hand of the large or totaling dial *b b'*, *c c'*, *d d'*, and *e e'*, representing, respectively, the spindles for the corresponding pointers of the individual dials.

The primary operating device of the register is a crown shaft or spindle 1, mounted in suitable bearings in the pendant of the case *f* and provided with an external knob 2, whereby it may be readily rotated in the same manner as the winding-spindle of a watch, said crown shaft or spindle being free to rotate in its bearings in the pendant, but being incapable of any other movement therein. The shaft or spindle 1 is squared or otherwise formed,

so as to permit it to engage with a clutch-sleeve 3, the bore of which conforms to the contour of said shaft or spindle, and it is mounted so as to be free to slide in a bearing 4 on the fixed frame of the register, as shown in Fig. 7. The sleeve has such sliding movement imparted to it by devices to be hereinafter described that when in its depressed position it is free from engagement with the spindle 1, but when raised it is engaged therewith, so as to be turned thereby, the normal position being in its depressed position, so that the clutch may be said to be normally open. The clutch-sleeve 3 is always in operative engagement with the squared or otherwise formed upper end of a shaft 5, which is mounted so as to be free to turn in a bearing 6 on the fixed frame of the register, but is incapable of other movement in said bearing. This shaft 5 is provided with a worm 7 and with a bevel-pinion 8, the former of which meshes with a worm-wheel 9, free to turn upon the spindle b' , and is secured to or provided with a pinion 10, which meshes with a spur-wheel 11 on the spindle a' , while the bevel-pinion 8 meshes with a similar pinion 12, the hub of which is secured to the spindle a . Hence the latter spindle and the units-pointer of the large or totaling dial of the register will have a complete rotation for each rotation of the shaft 5, the reducing-gearing between said shaft 5 and the spindle a' , however, providing for any desired reduction in the speed of rotation of the latter, dependent upon the multiple of the unit which the pointer carried by said spindle represents. In the present instance this multiple is intended to be one hundred. Hence the gearing is so devised that one hundred rotations of the shaft 5, and consequently of the units-pointer spindle a , will be required to effect one rotation of the spindle a' . The units-spindle a also has secured to it a spur-wheel a^2 , from which motion can be transmitted to any one of a series of spur-wheels b^2 , c^2 , d^2 , or e^2 , Fig. 3, carried, respectively, by the units-spindles b , c , d , and e of the individual dials, transmission being effected in the case of the pinions b^2 and c^2 by means of an interposed and shiftable pinion 13 and in the case of the pinions d^2 and e^2 by means of a similar interposed and shiftable pinion 14. The pinion 14 is mounted in a bearing 14^a on a lever 15, which is hung upon a suitable stud 16, projecting from the back plate of the frame, and the pinion 13 turns in a like bearing 13^a, carried by a similar lever 17, likewise mounted upon the stud 16 and lying alongside of the lever 15, the latter lever being slotted for the passage of said bearing, as shown in Fig. 5. The lever 15 has a projecting finger 18, which engages with a notch 19 in a swinging segment 20, mounted upon a transverse pin 21 of the fixed frame, and this swinging segment has a projecting finger 22, which engages a notch in a slide 23, mounted on the casing of the register, so as to be mov-

able from and toward the central pendant of the same, the slide having an external knob or handle 24, whereby it may be readily moved in either direction to effect such movement, the ends of the slot in the casing serving by contact with the finger 22 to limit the movements of the said slides. Similar elements, numbered from 18^a to 24^a, inclusive, operate in conjunction with the lever 17, as shown in Fig. 5. Hence by moving the knob 24 in a direction away from the pendant of the casing—that is to say, in the direction of the arrow x , Fig. 5—the adjusting device will thus cause the pinion 14 to be adjusted so as to connect the spur-wheels a^2 and d^2 , thereby serving to transmit motion to the units-spindle d , while movement of the knob 24 in the opposite direction or toward the pendant of the casing—*i. e.*, in the direction of the arrow y , Fig. 5—will move the pinion 14 into mesh with the pinion c^2 and will thus serve to transmit motion from the pinion a^2 to the latter, thereby operating the units-spindle c , and like movements of the knob 24^a will effect connection between the units-spindle a and the spindles c or b , respectively. A finger 25 upon one segment—for example, the segment 20^a—plays in a segmental recess 26 in the other segment 20, the end walls of which are formed between a projection or finger 58 and the tooth 59, constituting one side of the recess or notch 19. These parts are so related that when the device is locked and the slides are in their normal or central position the finger 25 is midway of the end walls, so that when one of the slides is moved toward the pendant—for example, the slide 23—the finger 25 will be brought into engagement with the upper end wall of the recess. (See Fig. 10.) In this position movement of the slide 23^a away from the pendant while the gears a^2 and c^2 are in mesh will impart movement to the segment 20, and through it to the lever 15, thereby disengaging the gears a^2 and c^2 as a^2 and b^2 are intermeshed. Should slide 23^a be moved in opposite direction with the gears a^2 and c^2 in mesh, the same result is effected by an interlocking connection between the two levers 15 and 17 having sufficient lost motion to permit either of the levers to be operated to bring its spur-pinion into operative relation with the gear a^2 and at such time causing the disengagement of the said spur-pinion from the gear c^2 when the other slide is operated. A convenient form of this interlocking connection is that shown in the drawings, where I utilize the bearings 13^a and 14^a, respectively, of the pinions 13 and 14 as one element of this connection, the said bearings extending through corresponding slots 15^b and 17^b in the levers 15 and 17, said bearings being centrally disposed in the slots when the pinions 13 and 14 are both out of mesh with the gear a^2 . When, therefore, the gears a^2 and c^2 are in mesh and the slide 23^a is moved toward the pendant or

in the opposite direction to that above indicated, thereby swinging the lever 17, the lower end of the slot 17^b coming into contact with the bearing 14^a will move the lever 15 upwardly and disengage the gears a^2 and c^2 . The same functions will be performed by the finger 25 and tooth 59 and slot 15^b and bearing 13^a when the parts are moved so that the finger 25 and tooth 59 or lower wall of the recess 26 are left in contact. It will be seen, therefore, that while all movements of the shaft 5 are transmitted to the units-spindle a of the totaling-dial of the register only one of the individual dials can at any one time partake of any such movement, the operative dial being determined by manipulation of the knobs 24 24^a of the adjusting device in the manner described, so that while the proper amount is always registered by the totaling-dial that particular amount can also be registered upon the individual dial to which it is properly charged.

It is necessary to prevent movement of the units-spindle of the totaling-dial unless there is corresponding movement of the units-spindle of one of the individual dials, and in order to effect such correlation of the parts the movement of the clutch which couples the crown-shaft 1 to the worm-shaft 5 is controlled by the movement of either of the swinging levers 15 or 17 in the following manner: Hung to a transverse pin 27 of the fixed frame is a lever 28, which has an operating-finger 29 and a toe 30, the latter engaging a notch 31 in a segment 32, which is mounted so as to be free to swing upon the pin 21 and is provided with a finger 33, engaging a notch 34 in a segment 32^a, which is hung to the pin 21^a and has a notch 31^a engaging a toe 30^a upon a lever 28^a, which is hung to a pin 27^a and has a projecting finger 29^a. The finger 29 is overlapped by one arm of each of the levers 15 and 17, and the finger 29^a is overlapped by the opposite arms of said levers, and the levers 28 and 28^a are each of such width in respect to the width of the levers 15 and 17 that depression of either arm of either lever will bring it into contact with the finger 29 or 29^a and will thus transmit any further movement to the lever 28 or 28^a. Hence the movement of either lever 15 or 17 in either direction must necessarily impart movement to one or other of the levers 28 or 28^a, and hence the segments 32 and 32^a. The segment 32 has projecting studs or pins 35, which are adapted to engage with shoulders 36, formed upon a hub which is mounted so as to be free to turn upon the pin 21, said hub having an arm 37, with projecting roller or pin for engaging a grooved portion of the clutch-slide 3. Any movement of either lever 15 or 17 will therefore have two results, the first being to carry its pinion 13 or 14 into engagement with the spur-wheel on the units-shaft of the individual dial which is

to be operated, and then to move the clutch-sleeve 3 so as to connect the crown-shaft 1 to the worm-shaft 5, and thereby provide for the transmission of power to the gearing of the register, this clutching action, however, following engagement of the power-transmitting pinion with the spur-wheel of the individual-dial spindle to be operated, so that there can be no movement of the worm-shaft 5 until all of the parts are in position to effect the proper transmission of said movement to the units-pointer of the totaling-dial and also to the units-pointer of the individual dial which is to be operated. The clutch-sleeve 3 is normally held in the depressed position by the action of a suitable spring, that shown in the present instance being a flat spring 38, bearing upon the top of the said clutch-sleeve, although any suitable form of spring can be used for the purpose. By this means both the clutch and the transmitting-pinions 13 and 14 are normally held in operative position. Hence accidental or unintentional rotation of the crown-shaft 1 can have no effect upon either of the pointers, positive movement of one of the knobs 24 or 24^a in one direction or the other being necessary in order to provide any connection between the crown or operating shaft and the pointer-spindles. Each of the levers 28 and 28^a has a tooth 40, which when said levers are in the normal position enters a space between teeth of the spur-wheel a^2 of the units-spindle of the totaling-dial, as shown in Fig. 3, and thus locks said spur-wheel against accidental movement, and in like manner the spur-wheels b^2 , c^2 , d^2 , and e^2 are locked against accidental movement by means of spring-actuated detents 41, as shown in Fig. 3. These locking-teeth and detents also serve to bring each spur-wheel, and consequently the units-spindle to which it is connected, to a predetermined stop position after each movement, and thus prevent overrunning of either spindle due to acquired momentum.

The desired slowing down of the movement of the multiple-counter spindle of each of the individual dials can be effected by the employment of any desired form of reducing-gear between the units-hand spindle and multiple-hand spindle of each dial. As shown in the drawings, the reduction is intended to be one to twenty-five, and in order to effect such reduction each of the spur-wheels b^2 , c^2 , d^2 , and e^2 has secured to or forming part of the same a pinion 42, which meshes with a spur-wheel 43, free to turn on a pin 46 and having a pinion 44, which meshes with a spur-wheel 45 on a multiple-dial spindle b' , c' , d' , or e' . (See Fig. 3.)

Instead of employing slides 23 and 23^a, operating the swinging segments and connected parts for connecting the main-dial spindle with the desired gear-wheel on the subordinate spindle, I may employ other forms of mechanism for effecting the purpose con-

trolled by reciprocating rods or stems in lieu of the slides. For example, in Figs. 12 and 13 I have shown one form of such a device applied to my register, wherein push or pull rods 23^c and 23^d, operated by knobs from the outside of the casing, are adapted to reciprocate vertically-slidable arms 20^b and 20^c, each having a stud or pin 20^e engaging the slotted or forked end of the levers 15^c and 17^c, which carry the pinions 13 and 14, as in the previously-described construction. The lower end of the arm 20^b is provided with a recess 26^a, corresponding in function to the recess 26 of the segment 20^a, in which recess plays a finger 25^a on the arm 20^c, corresponding to the finger 25 and for the same purpose, and each of the levers 15 and 17 is provided with the pin-and-slot connection afforded by the bearings 13^a and 14^a and the slots 15^d and 17^d, as in the previously-described form. In this modification the locking-levers 28 and 28^a preferably, though not necessarily, give place to a sliding plate 28^b, provided with locking-teeth 40^a, normally held in locking engagement with the main gear a^2 by a spring 28^c, attached to the plate and having its opposite ends resting on or attached to suitable lugs on the casing. When the rod 23^c is pulled upwardly, for example, the pin 20^e swings the arm 15^c upwardly, thereby bringing the gear 14 into engagement with the subordinate-dial gear d^2 , as shown in Fig. 13, and by the downward swing of the opposite end of the lever 15^c its end 15^d engages the plate 28^b and imparts a downward motion thereto, thus unlocking the main gear. This upward movement of the arm 20^b brings the lower wall of the recess 26^a into contact with the finger 25^a, in which position a downward movement of the rod 23^d would impart downward movement to the rod 20^c and disengage the gears d^2 and 14, or an upward movement of the said rod would by engagement of the bearing 13^a with the slot 15^b in the lever 15^c impart the same downward movement to said arm 20^b and likewise disengage said gears. Similar movement of the rod 23^c will, when the rod 23^d is operated to bring the pinion 13 into mesh with b^2 or c^2 , effect disengagement thereof. Thus said parts act in the same way as the previously-described construction to render it impossible to have more than one individual-dial gear in operative engagement with the main spindle at any one time. In this form I provide an additional safeguard in the form of a locking-toe 41^b on each of the detents 41^a, which toes are adapted to be engaged by the inclined cam-surfaces on the ends of the levers 15^c and 17^c when the latter swing to connect the appropriate gears of the subordinate dials, so as to lock the detent 41^b out of engagement with the subordinate-dial gear that is to be operated. The incline is just sufficient to permit the arm to swing against the toe 41^b and push the detent out

of engagement with its gear and hold it there until released by the reverse movement of the arms 15^c or 17^c, effected, as indicated, by movements of the rods or stems 23^c and 23^d, as the case may be.

It will be evident that in carrying out my invention various forms of devices may be employed for connecting the gear-wheel on the main-dial spindle with the gear-wheels on the individual spindles, and in Figs. 14 and 15 I have illustrated one modification of the mechanism whereby all of the different connections can be accomplished by means of a single controlling device. In this modification a transmitting-pinion is employed for each of the individual dials, the four transmitting-pinions being lettered, respectively, b^3 , c^3 , d^3 , and e^3 . Each of these pinions is carried by an arm 47, mounted upon the respective spindles to which motion is to be transmitted through the medium of the pinions, the position of each of these arms being determined by a cam-disk 48, which is mounted upon one of the spindles of the central disk or upon a stud concentric therewith, an ear 49 on one side of the said cam-disk being connected to a bar 50, which is movable longitudinally so as to impart movement of partial rotation to the disk 48, said bar being notched, as at 51, for engagement with a spring-detent 52, so that while it can be moved from one position to another by the application of sufficient force it will be held against accidental movement from either of its positions of adjustment. In the cam-disk 48 are four cam-slots 53, one for each of the arms 47, these cam-slots receiving the projecting ends of the pinion-shafts or other projecting lugs or studs on the arms, so that as the cam-disk 48 is caused to turn about its axis the cam-slots will cause swinging movement of the arms 47, and thereby carry their pinions into or out of engagement with the driving spur-wheel a^2 . Each slot has an acting portion and a dwell portion, so disposed that the arms 47 will be acted on successively by movement of the cam-disk. Thus, as shown in the drawings, the pinion d^3 is in mesh with the gears a^2 and d^2 and all of the other pinions are out of mesh with said gear a^2 ; but by partial movement of the disk 48 in the direction of the arrow the pinion d^3 will be swung out of mesh with the gear a^2 and the pinion c^3 will be swung into mesh therewith, so as to transmit motion from said gear a^2 to the gear c^2 , and further movement of the cam-disk in the same direction will throw the pinion c^3 out of mesh with the gear a^2 and bring the pinion b^3 into mesh therewith, still further movement throwing said pinion b^3 out of mesh with the gear a^2 and bringing the pinion e^3 into mesh therewith, and successive action of the various arms 47 in reverse order will be effected by movement of the cam-disk in the opposite direction.

It will be evident from these modifications, therefore, that many changes in the character of the transmitting-gears can be devised by those skilled in the art which will be within the scope of my invention. For instance, the pinions b^3 , c^3 , d^3 , and e^3 may be in fixed relation to the corresponding gears b^2 , c^2 , &c., while the central gear a^2 may be movably mounted, so as to be brought into mesh with any one of said pinions through the movement of the adjusting devices, thus dispensing with the cam. Hence my broader claims are not intended to be limited in this respect.

Although I prefer in all cases to use the main or totaling dial with its unit and multiple pointers, some of the features of my invention can be embodied in a register employing only the subordinate or separate expense-dials.

I claim as my invention—

1. The combination in a register, with a series of individual-dial mechanisms, of a totaling-dial mechanism for the totals of the said individual-dial mechanisms, gearing for transmitting motion between the individual-dial mechanisms and the totaling-dial mechanisms, means for operating the said gearing from a single shaft, means for shifting said gearing to make alternate connections between any selected one of the individual-dial mechanisms and the totaling-dial mechanism, and means for causing the totaling-dial mechanism to be inoperative when none of the individual-dial mechanisms are operated, substantially as described.

2. The combination in a register, with a series of individual-dial mechanisms, of a totaling-dial mechanism for the totals of the said individual-dial mechanisms, an operating-shaft and gearing for transmitting motion between the individual-dial mechanisms and the totaling-dial mechanism, means for shifting the said gearing to make alternate connections between any selected one of the individual-dial mechanisms and the totaling-dial mechanism, and means for preventing the simultaneous operation of more than one of the individual-dial mechanisms, substantially as described.

3. The combination in a register, with a main-dial spindle, of a series of individual-dial spindles, gearing for transmitting motion between the main-dial spindle and the individual-dial spindles, and means for causing said gearing to operatively engage only one of said individual-dial spindles at any given time, and means for locking the idle individual-dial spindles against movement while the other said individual-dial spindle is in operative connection with the main-dial spindle, substantially as described.

4. The combination in a register, of a series of individual-dial mechanisms, a single operating-shaft therefor, a single clutch con-

trolling the same and normally keeping the operating-shaft inoperative with respect to the dial mechanisms, gearing and adjusting device therefor, and connections between the said adjusting device and the said clutch, whereby any one selected dial mechanism of the series may be connected to the said operating-shaft by the movement of the said adjusting device and the remaining dial mechanisms locked against operation, substantially as described.

5. The combination, in a register, with a series of individual-dial mechanisms, of a totaling-dial mechanism for tallying the totals of the individual-dial mechanisms, a single operating-shaft for the said totaling-dial mechanism, a single clutch controlling the same and normally keeping the totaling-dial mechanism inoperative, gearing for transmitting motion between the totaling-dial mechanism and the individual-dial mechanisms, an adjusting device for the said gearing and connections between the said adjusting device and the clutch, whereby the said clutch can be brought in operative connection with the totaling-dial mechanism until one of the individual-dial mechanisms is operatively connected to the totaling-dial mechanism, substantially as described.

6. The combination in a register, of a series of individual-dial mechanisms, a single operating-shaft therefor, a single clutch controlling the same and normally keeping the operating-shaft inoperative with respect to the dial mechanisms, gearing and adjusting device therefor, and connections between the said adjusting device and the said clutch, whereby any one selected dial mechanism of the series may be connected to the said operating-shaft by the movement of the said adjusting device and the remaining dial mechanisms locked against operation, the parts being so disposed that the clutch connection cannot be complete until after connection between the operating-shaft and one of the individual-dial mechanisms has been established, substantially as described.

7. The combination in a register, with a series of individual-dial mechanisms, of a totaling-dial mechanism for tallying the totals of the individual-dial mechanisms, a driving-shaft for operating the totaling-dial mechanism, a single clutch controlling the same and normally keeping the totaling-dial mechanism inoperative, gearing for transmitting motion between the totaling-dial mechanism and the individual-dial mechanisms, an adjusting device for the said gearing and connections between the said adjusting device and the said clutch whereby any one selected individual-dial mechanism may be operatively connected to the totaling-dial mechanism, the said totaling-dial mechanism operatively connected to the driving-shaft, and the remaining dial

mechanisms locked out of operation all by the movement of the said adjusting device, substantially as described.

8. The combination in a register, of a main-dial spindle, a series of subordinate-dial spindles, and a single operating-shaft geared to said main-dial spindle, a normally open clutch controlling said shaft, and gearing whereby any selected one of the subordinate-dial spindles may be connected to said single operating-shaft, substantially as described.

9. The combination in a register, of a main-dial spindle, a series of subordinate-dial spindles, a single operating-shaft geared to said main-dial spindle, a normally open clutch controlling said shaft, gearing whereby any selected one of the series of subordinate-dial spindles may be connected to said shaft, an adjusting device therefor, and connections between the adjusting device for said gearing and the clutch, whereby the latter is put into operation by the movement of said adjusting device, substantially as described.

10. The combination in a register, of a main-dial spindle, a series of subordinate-dial spindles, a single operating-shaft geared to said main-dial spindle, a normally open clutch controlling said shaft, gearing whereby any selected one of the series of subordinate-dial spindles may be connected to said shaft, an adjusting device therefor, and connections between the adjusting device for said gearing and the clutch, whereby the latter is put into operation by the movement of said adjusting device, said parts being so disposed that the clutch connection cannot be completed until after the connection between the driving-shaft and the subordinate-dial spindle has been established, substantially as described.

11. The combination in a register, of a main-dial spindle, an operating-shaft therefor geared to said main-dial spindle, a gear-wheel on said main-dial spindle, gears on the subordinate-dial spindles, a lever movable about the axis of the said main-spindle gear-wheel, and a pinion carried by said lever and meshing with said gear-wheel, and movable into mesh with the gear-wheels of either of the subordinate-dial spindles, substantially as described.

12. The combination in a register, with a main-dial spindle, of a series of subordinate-dial spindles, gearing between the main-dial spindle and the subordinate-dial spindles, a locking device normally locking the main-dial spindle, an adjusting device movable in opposite directions, and connections between said adjusting device and locking device, whereby movement of the adjusting device in either direction from its normal position will unlock the main-dial spindle, substantially as described.

13. The combination, with a casing, of a

totaling-dial mechanism arranged centrally within the casing, a main spindle for the said dial mechanism, a gear-wheel arranged upon the said main spindle, a series of individual-dial mechanisms arranged around the said totaling-dial mechanism, driving gear-wheels connected to the said dial mechanisms, an arm or arms pivoted upon the main-dial spindle, a pinion pivoted to the said arm and meshing with the gear-wheel upon the said main spindle and between the gear-wheels of the individual-dial mechanisms, means for normally holding the said pinion out of engagement with the said gear-wheels and an extension of the said arm or arms to and accessible from the outside of the casing for shifting the said pinion to engage the gear-wheels, substantially as described.

14. The combination, with the casing, of a totaling-dial mechanism, a main spindle for the said dial mechanism, a gear-wheel arranged upon the said spindle, a series of individual-dial mechanisms, arranged around the said totaling-dial mechanism, driving-gears connected to the said dial mechanisms, arms pivoted upon the totaling-dial-mechanism spindle and extending in opposite directions, pinions connected to the said arms and meshing with the gear-wheel upon the said main spindle and arranged between the gear-wheels of the said individual-dial mechanisms, extensions of the said arms to and accessible from the outside of the casing, projections and shoulders upon the said arms engaging each other and interlocking plates connected to the said arms, whereby when one of the said pinions are moved in mesh with any one of the individual-dial-mechanism wheels the other pinion is forced to a central position and out of engagement with the wheels of the opposite individual-dial mechanisms, substantially as described.

15. The combination in a register, with a main-dial spindle, of a series of subordinate-dial spindles, an operating-shaft, gearing between the main-dial spindle and the subordinate-dial spindles, a locking device normally locking the main-dial spindle, an adjusting device movable in opposite directions, a normally open clutch and connections between said adjusting device and locking device and clutch, whereby movement of the adjusting device in either direction from its normal position will unlock the main-dial spindle and close the clutch, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES JESSEN.

Witnesses:

R. T. FRAZIER,
C. A. NEALE.