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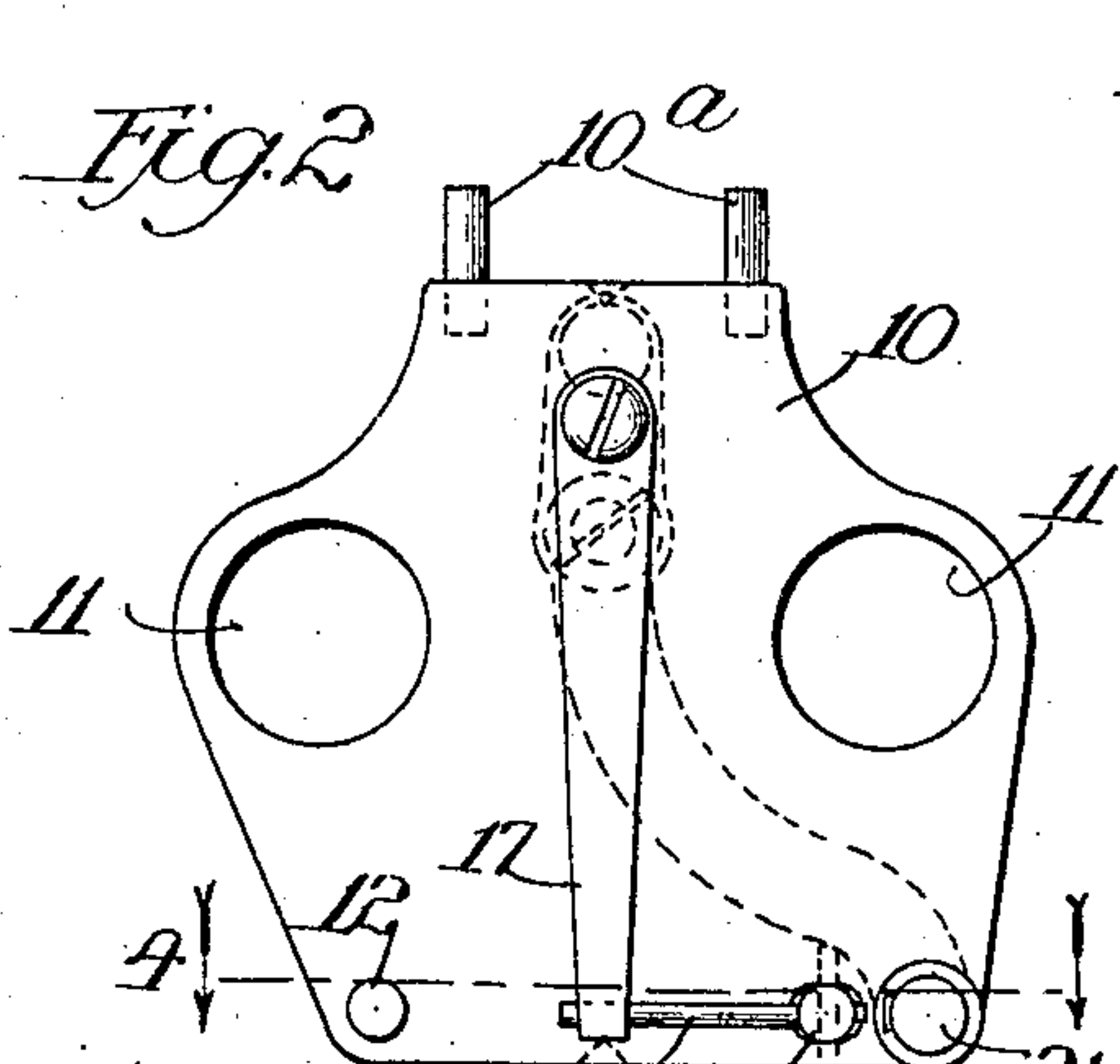
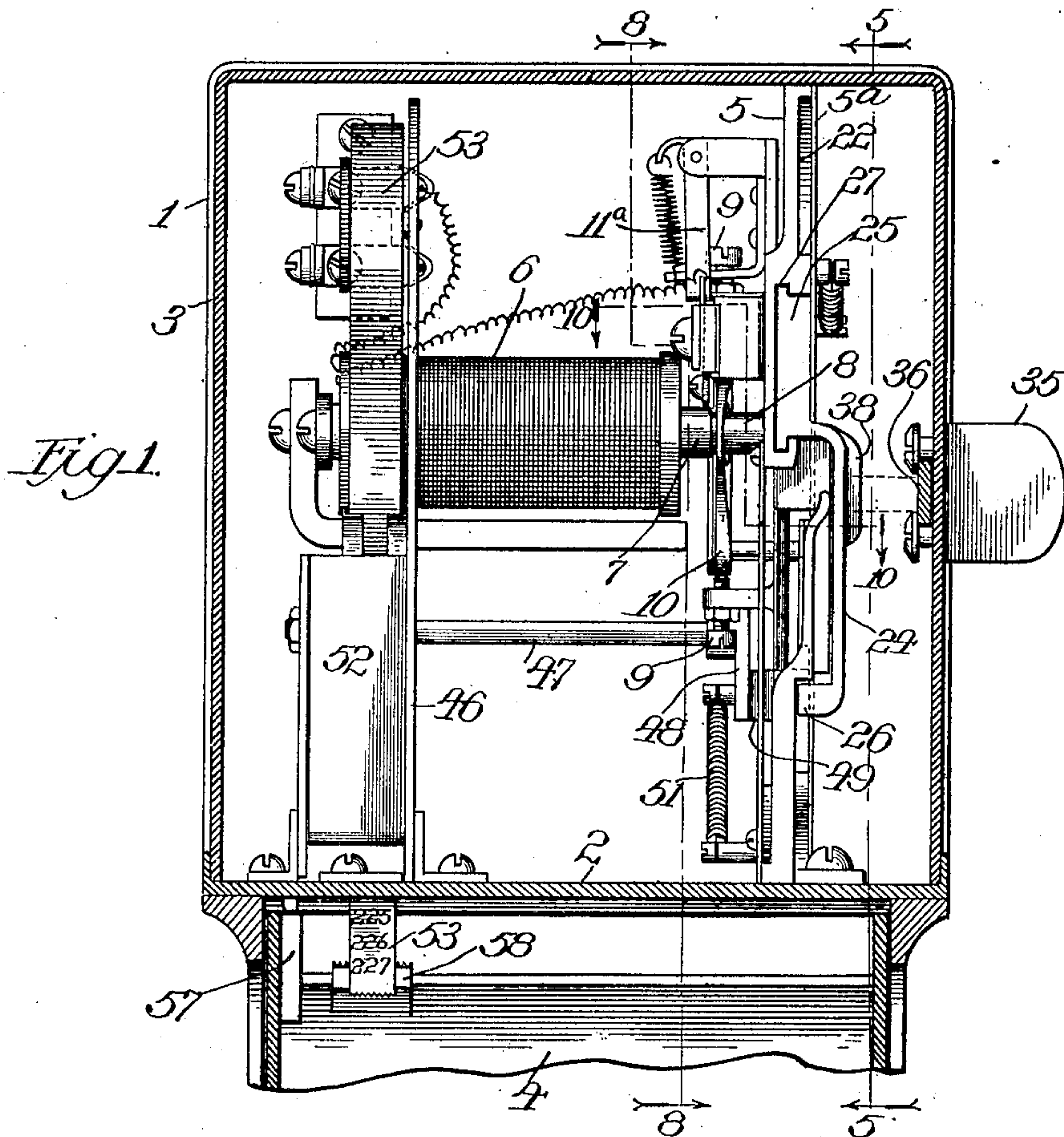
PATENTED APR. 21, 1908.

F. D. POWELL & C. S. ELLIS.

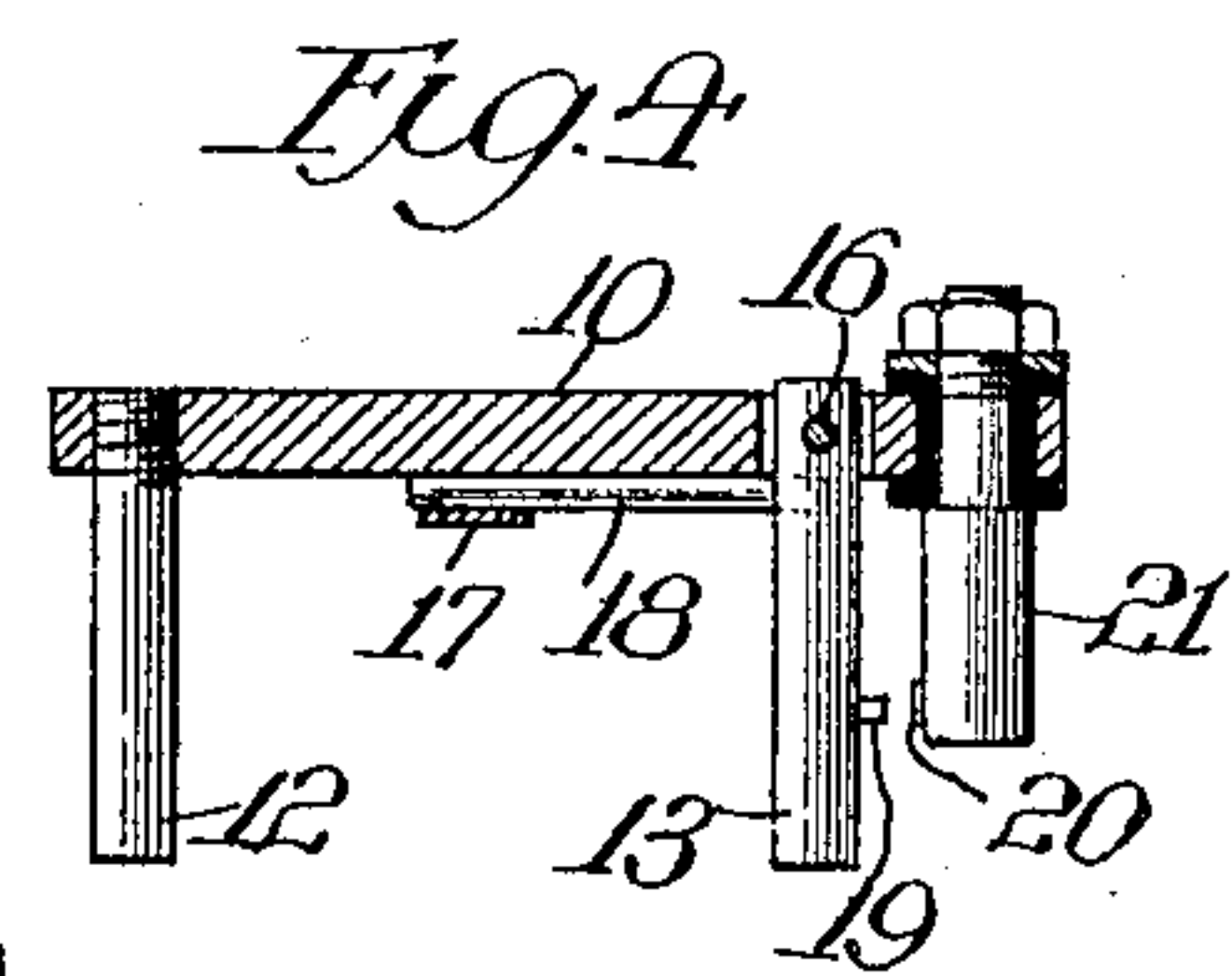
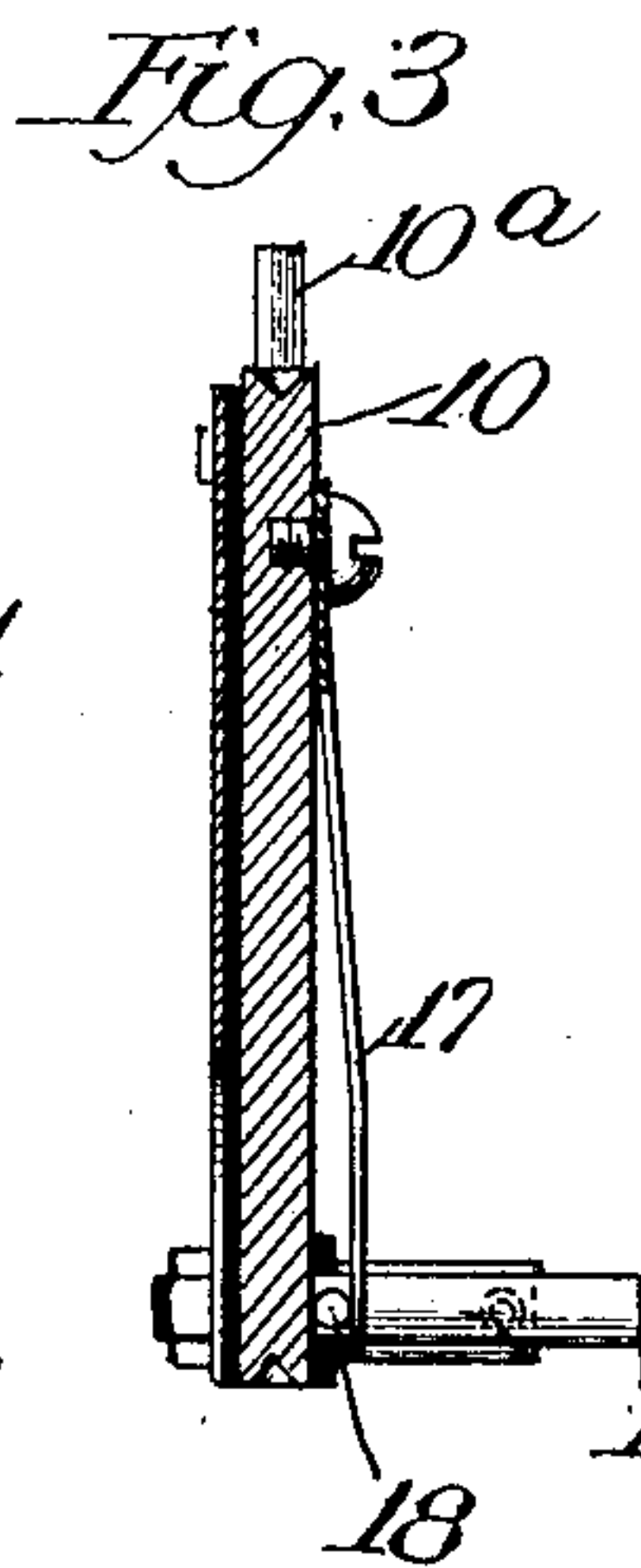
COIN BOX AND REGISTERING MECHANISM FOR TELEPHONES.

APPLICATION FILED DEC. 12, 1904.

4 SHEETS—SHEET 1.



Witnesses;
Edu. R. Burch
Carrie E. Jordan



Inventors
Frank D. Powell.
Charles S. Ellis.
By David H. Fletcher,
Atty.

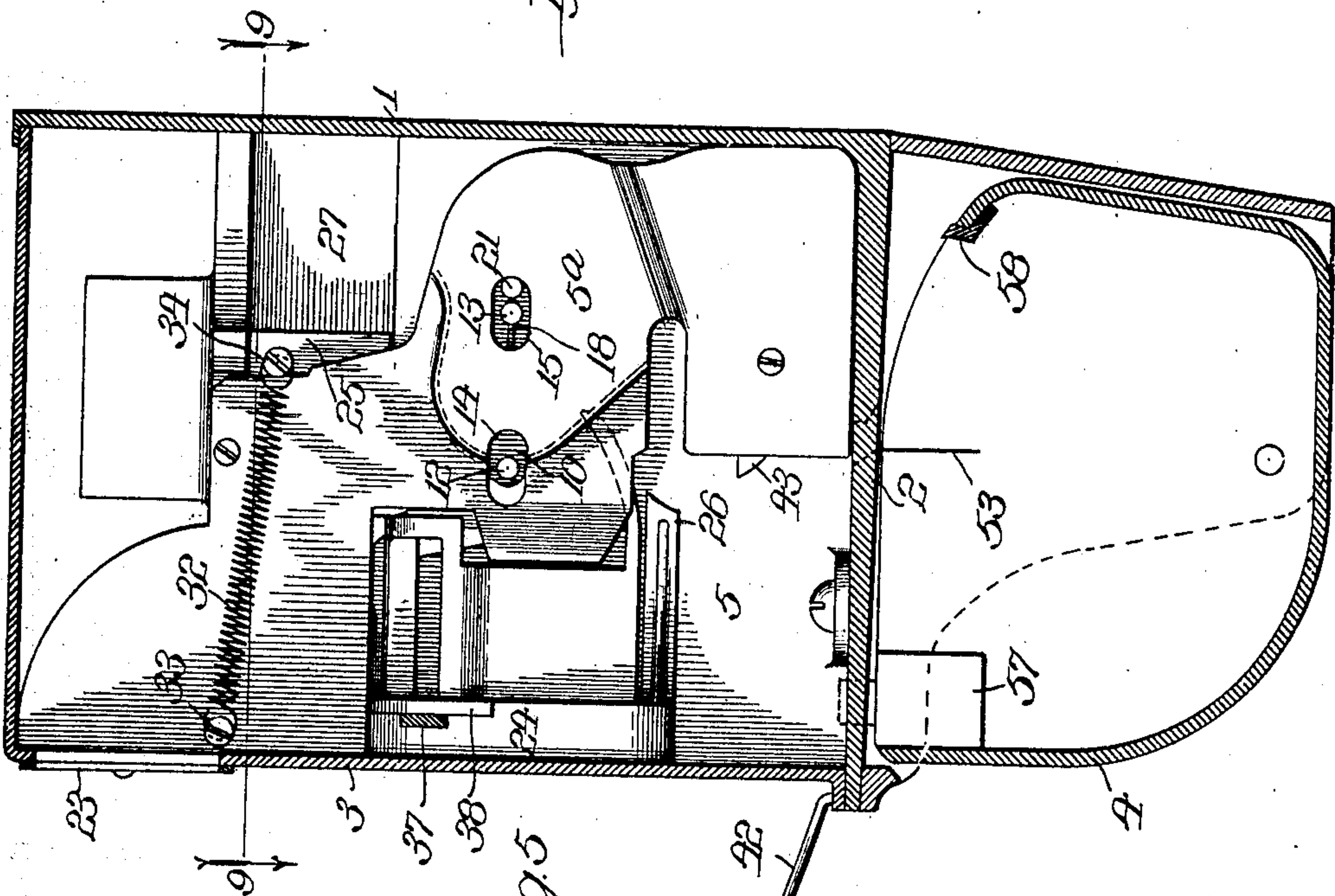
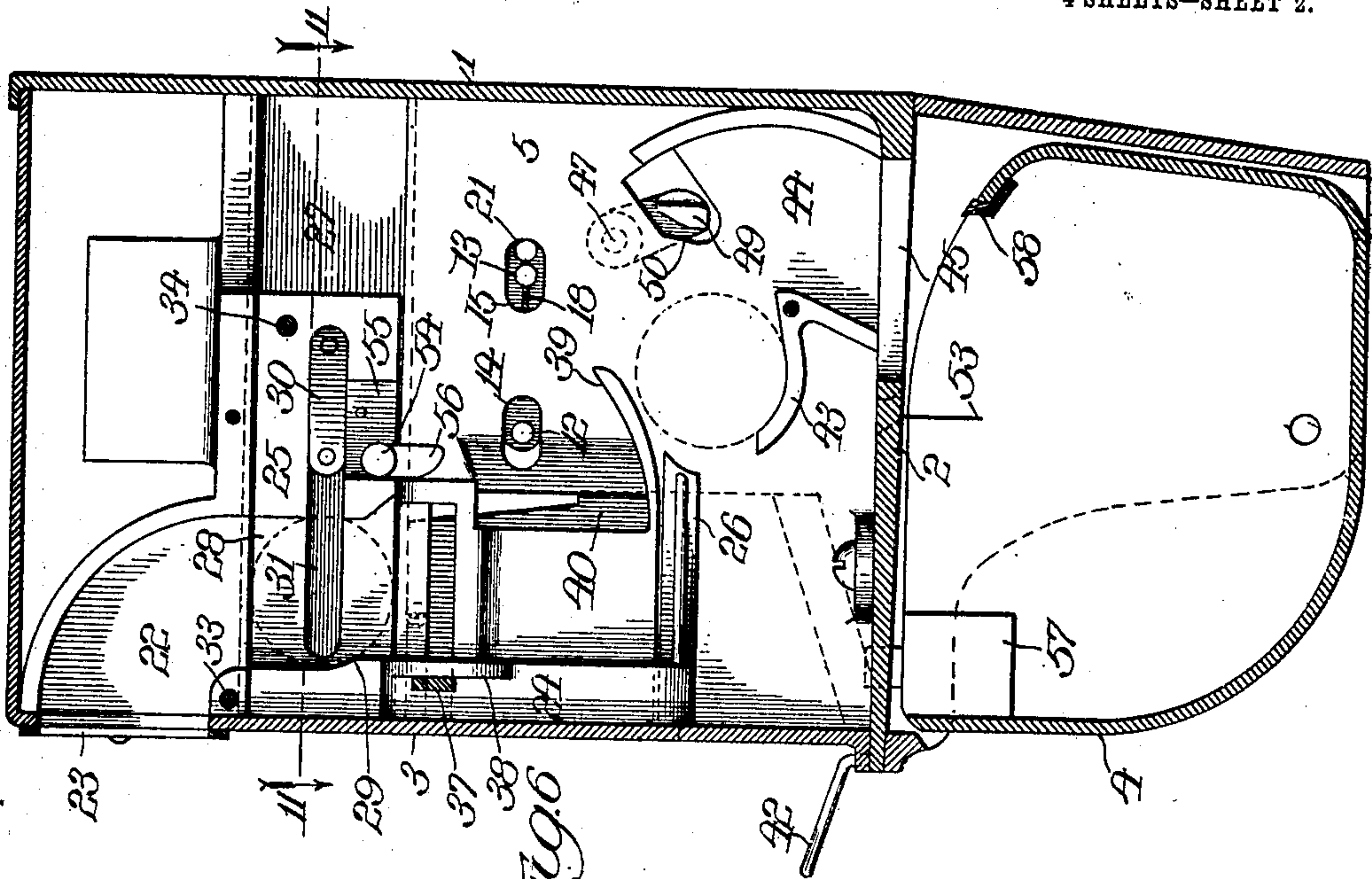
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4 SHEETS—SHEET 2.



Witnesses;
Edw. R. Barrett
Carrie E. Jordan

Inventor's
Frank D. Powell,
Charles S. Ellis,
By David H. Fletcher,
Atty

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4 SHEETS—SHEET 3.

Fig. 8

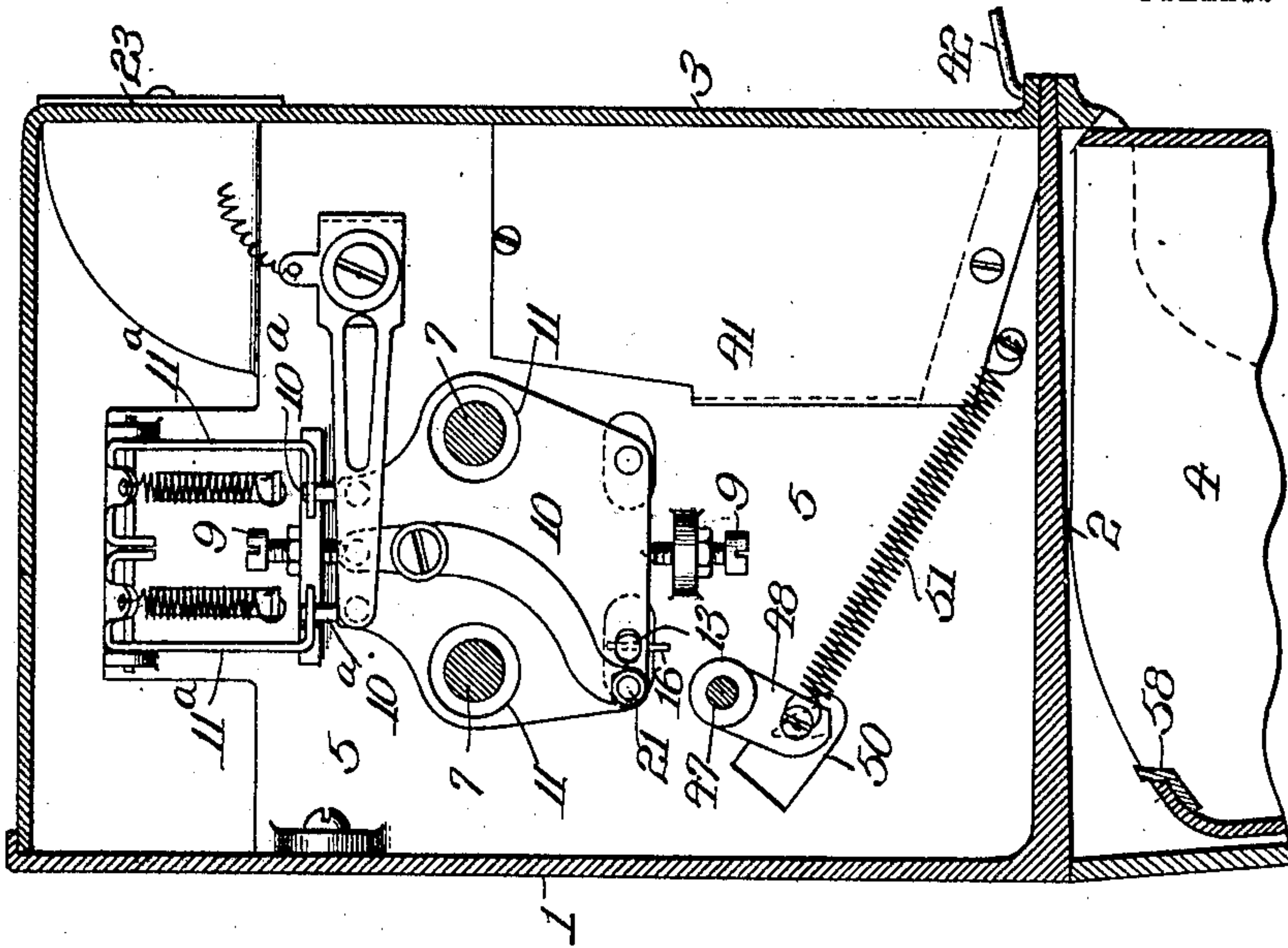
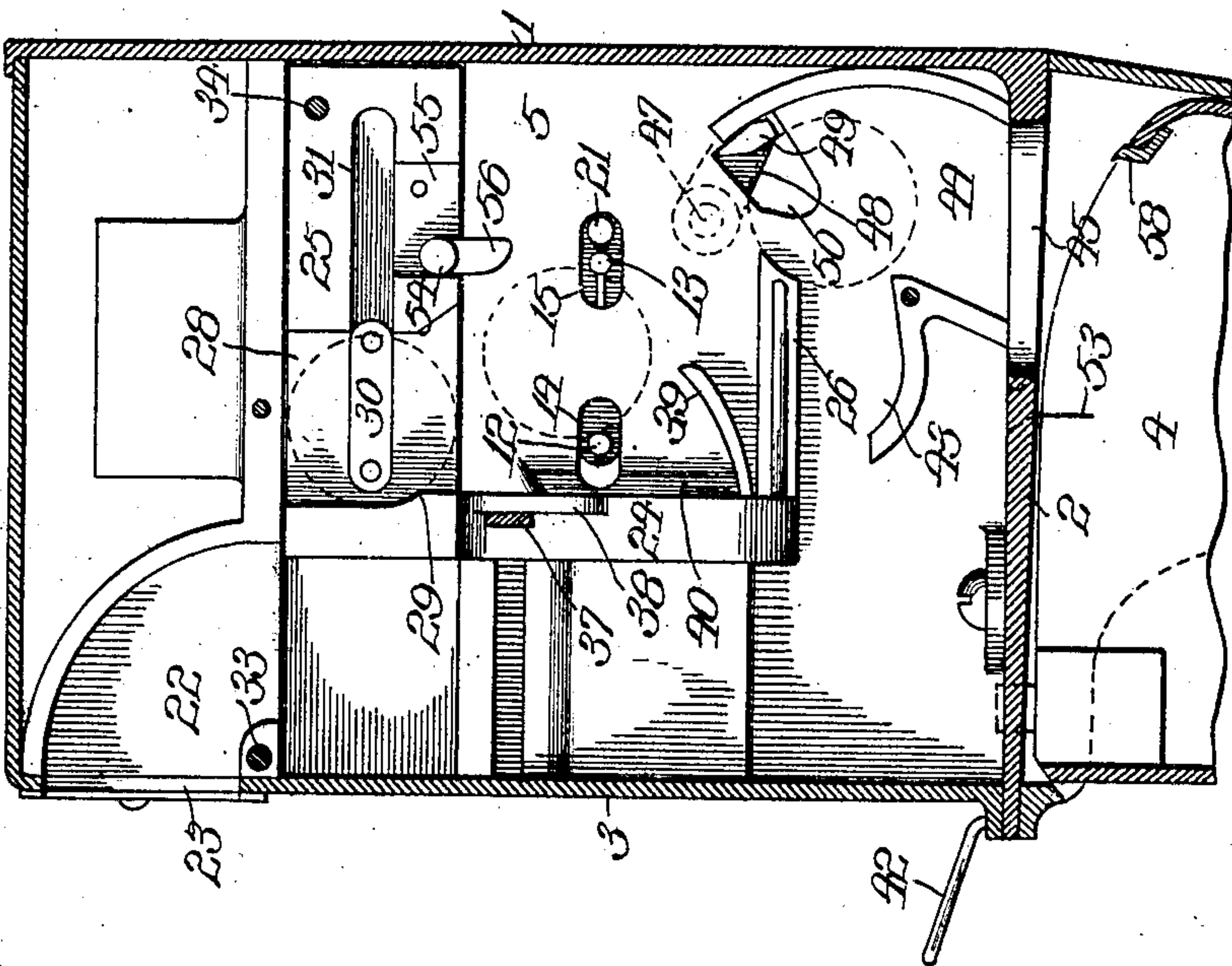


Fig. 7



Witnesses:
Edw. A. Burchett
Learie E. Jordan

Inventors
Frank D. Powell
Charles S. Ellis.
By David H. Fletcher
Atty.

No. 885,375.

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F. D. POWELL & C. S. ELLIS.

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4 SHEETS—SHEET 4.

Fig. 9

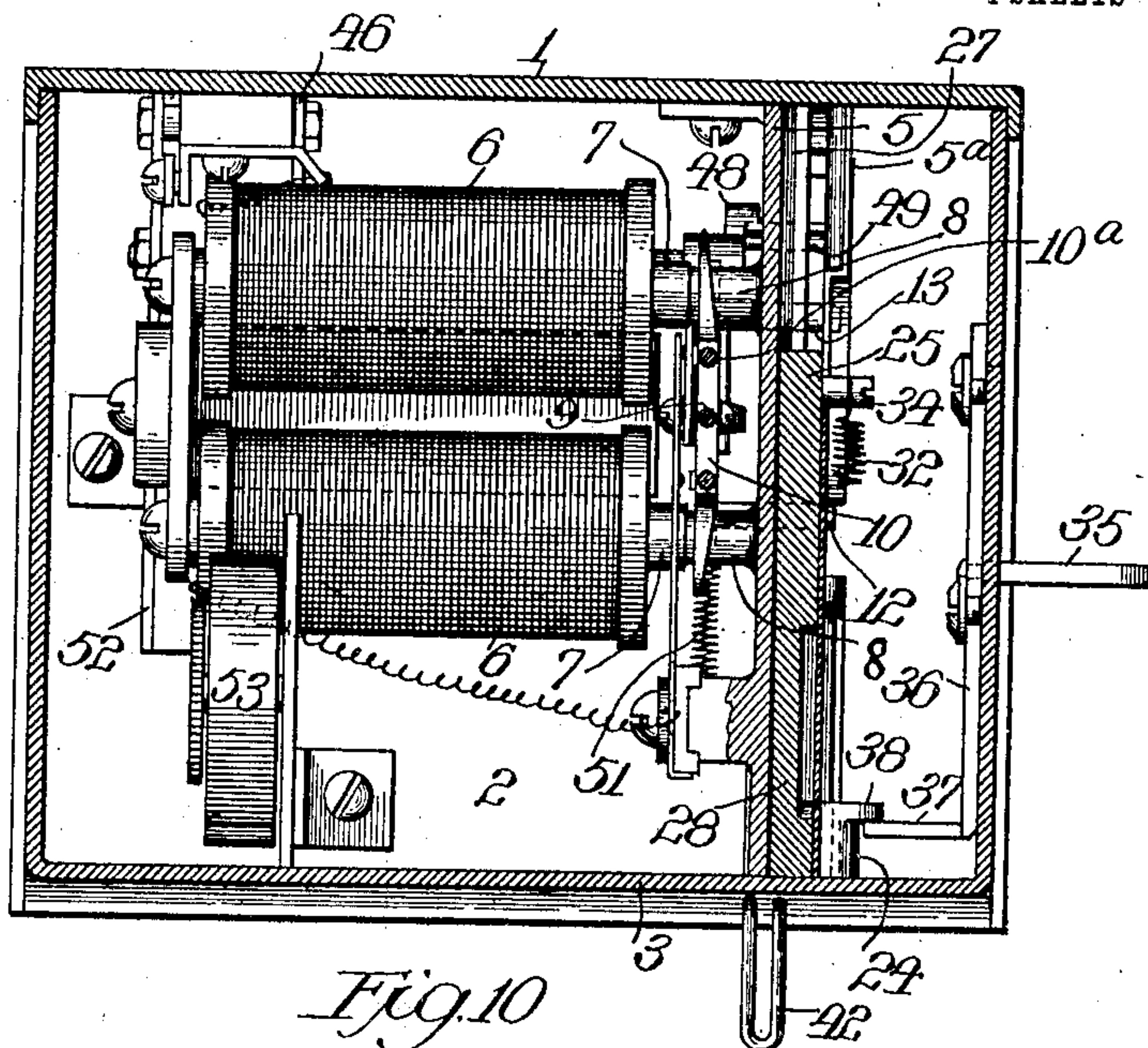


Fig. 10

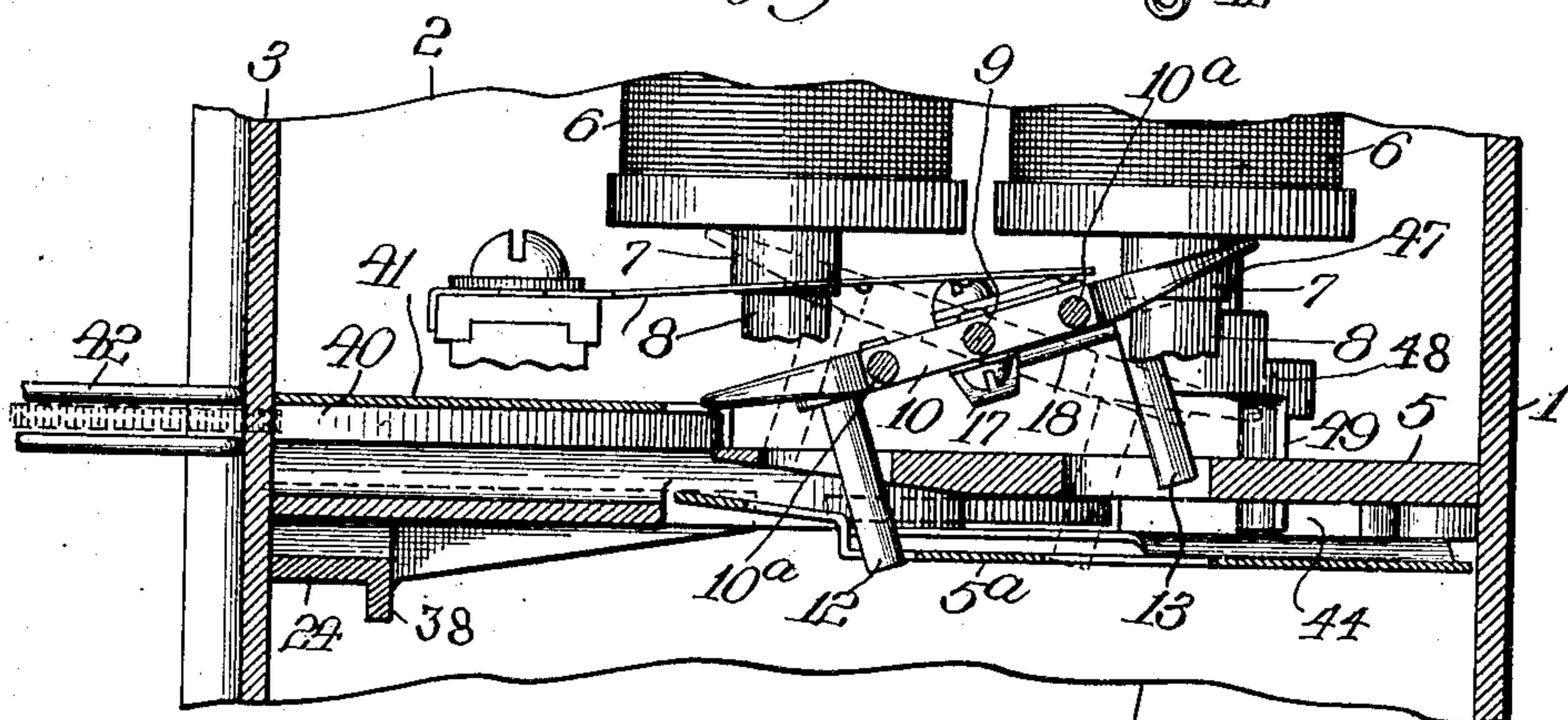
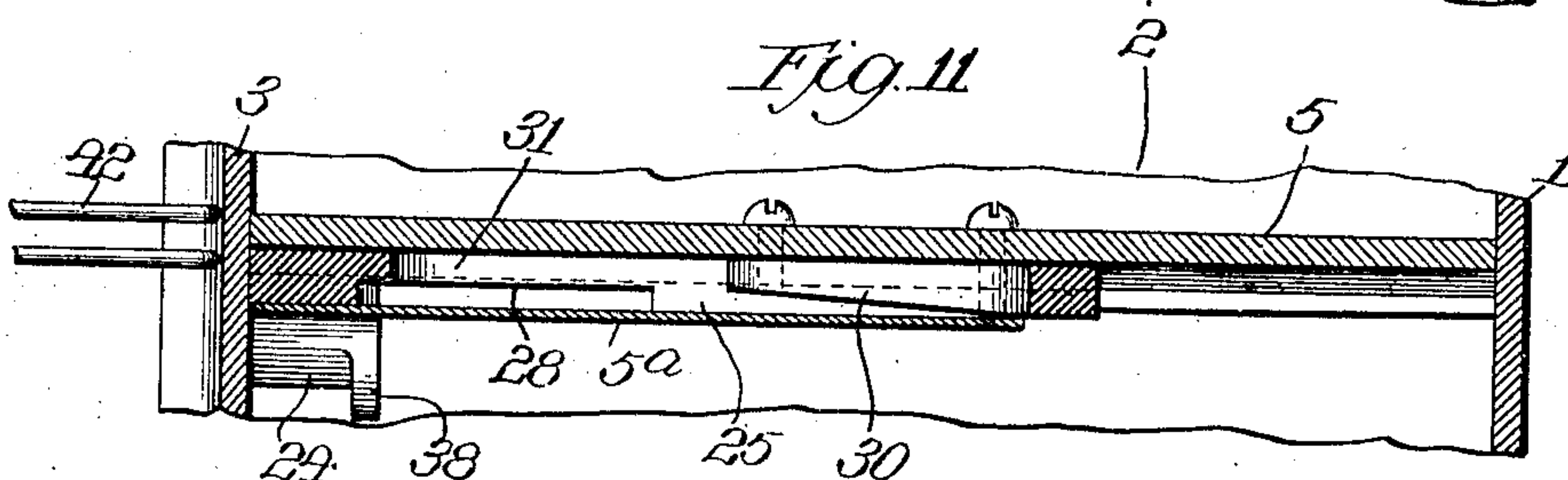


Fig. 11



Witnesses

Edw. R. Barrett

Barrie E. Jordan

Inventor

Frank D. Powell

Charles S. Ellis

By David H. Fletcher,

Atty.

UNITED STATES PATENT OFFICE.

FRANK D. POWELL AND CHARLES S. ELLIS, OF CHICAGO, ILLINOIS, ASSIGNORS TO AMERICAN COIN REGISTER COMPANY, A CORPORATION OF ILLINOIS.

COIN-BOX AND REGISTERING MECHANISM FOR TELEPHONES.

No. 885,375.

Specification of Letters Patent.

Patented April 21, 1908.

Application filed December 12, 1904. Serial No. 236,615.

To all whom it may concern:

Be it known that we, FRANK D. POWELL and CHARLES S. ELLIS, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Coin-Boxes and Registering Mechanism for Telephones, of which the following is a description, reference being had to the accompanying drawings, forming a part of this specification, in which corresponding letters of reference in the different figures indicate like parts.

The object of our invention is to provide a simple and reliable coin registering mechanism in connection with a coin receiving box, which mechanism shall be so protected and combined with the box and coin operating mechanism that neither can be accessible except to duly authorized persons.

Further objects are to provide means whereby a coin after having been deposited by a customer, may be under the control of an operator at a central office so that it may be returned to the customer in case the party called fails to answer, but cannot be deposited in the coin-box except by a positive action at the subscriber's station. Moreover, we desire to provide means for preventing the coins from becoming clogged in the ways,—all of which is hereinafter more particularly described and claimed.

In the drawings: Figure 1, is a front elevation of a box embodying the features of our improvement, showing the coin manipulating and registering mechanism, together with a portion of the coin receptacle, the casing being shown in section for the purpose of exposing the mechanism, Fig. 2, is an enlarged face view of the armature, Fig. 3, is a central vertical section thereof, Fig. 4, is a sectional view in plan of the armature taken upon the line 4—, Fig. 2, Fig. 5, is a vertical sectional view taken upon the line 5—, Fig. 1, viewed in the direction of the arrow there shown, Fig. 6, is a like view with the guard plate or shield removed to show the coin-channels, the coin-actuator therein being shown in its normal position, Fig. 7, is a like view showing the coin-actuator in an abnormal position, Fig. 8, is a vertical sectional view taken upon the line 8—, Fig. 1, viewed in the direction of the arrow there shown, Fig. 9, is a sectional plan view taken upon the line 9—, Fig. 5, Fig. 10, is a sectional plan view taken upon

the line 10—10, Fig. 1, and Fig. 11, is a like view taken upon the line 11—, Fig. 6.

Our improved coin or toll-box is an improvement upon the general type shown in the following described patents, viz.: Letters Patent No. 728,309, May 19, 1903, to C. E. Scribner, and Patent No. 665,874, to A. M. Bullard, dated January 15, 1901.

In our improved box, like that in both of the patents referred to, the deposit of a coin at a subscriber's station causes a signal to be transmitted to the central office,—the coin serving as an intermediary to close an electrical connection between the two. The coin is arrested in its passage to the money box and electro-magnetic mechanism is provided under the control of the operator at the central office for causing the coin to be thrown into a channel in position to be delivered to the cash-box, or in the event that the desired connection cannot be effected, for directing a coin into a return passage leading to the outside of the toll-box.

Inasmuch as the coin, under the construction heretofore employed, is intended to act by gravity alone, it cannot be utilized successfully to operate a registering mechanism. Our invention contemplates the use of the polarized electro-magnet, and the tilting armature shown and described in said Scribner patent, together with the electrical circuits illustrated and described in said Bullard patent, and the means whereby the operator at the central office may shift the direction of the current to tilt the armature in one or another direction according as it is desired to deposit or return the coin, with novel mechanism for causing it, when released from the armature, to be temporarily withheld from the coin box until forced therein by the movement of positively acting mechanism at the subscriber's station, which mechanism, in conjunction with the coin, serves to positively operate a registering mechanism for registering the coin when deposited in the box.

Referring to the drawings, 1 represents the upper portion of the case which consists of a back and bottom portion 2 formed integral therewith. A removable portion 3, constituting the front, top and sides, is adapted to be secured thereto by means of any approved locking mechanism. The parts described constitute the case within which is located the coin manipulating and registering mech-

anism which is intended to be secured thereby from unauthorized manipulation or access.

Beneath the part 2 is located a coin receptacle 4, which may be of any approved pattern provided it is rigidly connected with the other and is separately accessible and properly locked. Rigidly attached to the parts 1 and 2 is a vertical support 5 which extends from front to rear and from the bottom to the top of the casing. Extending laterally from the inner face of said support in a horizontal plane is a polarized electro-magnet 6, the pole extensions 7 of which are rigidly attached in any well known way to bosses 8, 8, projecting from the face of the support 5. Pivotaly mounted upon a vertical axis by means of set-screws 9, 9, Fig. 1, secured to brackets upon said support is an armature 10, also shown in Figs. 2, 3, 4, 9 and 10, which armature is provided with perforations 11 therein, through which said pole extensions are projected. Said armature is adapted to be tilted upon its axis in one or another direction, as shown in Fig. 10, according to the direction of the current passed through the magnet coil, but is held normally in the position shown in Fig. 9 by means of spring controlled arms 11^a, Fig. 8, bearing against pins 10^a projecting upwardly from said armature. Said armature is provided with metallic pins 12 and 13 which project laterally therefrom through openings 14, 15 in the part 5. The pin 12 is rigidly attached to the armature, but the pin 13 is pivotaly attached at 16, Figs. 2 and 4, and is held in a normal position by means of a light spring 17, arranged to bear against an arm 18, Figs. 2, 3 and 4. A contact point 19 upon the pin 13 is adapted, when in an abnormal position, to engage a like contact point 20 upon a stud 21, which is attached to said armature, but insulated therefrom as shown.

The weight of a coin when caused to rest upon the pins 12 and 13, as hereinafter described, will deflect the pin 13 so as to close the contact between the points 19 and 20, thereby closing an electric circuit between a subscriber's station and the central office and operating a signal at the latter place. The construction and placing of a polarized electro-magnet, the tilting armature, the electric circuits in connection therewith and with the central office for reversing the current and tilting the armature, are all old in the patents referred to, and inasmuch as they are fully described and shown therein, we have not deemed it necessary to show or describe them further in this application, but will proceed to describe the coin chutes, the mechanism for positively manipulating the coin and the registering mechanism in connection with the tilting armature.

Formed in the plate or upright 5 is a groove or coin passage 22, which is in com-

munication with the usual coin-slot 23 in the front of the box. A slidable coin actuator, generally designated by 24, is provided with an upper horizontal portion or extension 25 and a lower horizontal extension 26, the former of which is adapted to slide in a dovetailed groove 27, formed in the plate 5, as clearly shown in Figs. 1, 5 and 6. A portion of the part 25 is cut away as shown at 28, Figs. 6, 7 and 11, so as to be flush with the inner face of the coin groove 22. A slight shoulder 29 is formed upon the front edge of the groove 28, so that when a coin is introduced in the slot, one edge will rest upon said shoulder and the other against the opposite edge of the groove as indicated in dotted lines in Fig. 6. A wedge-shaped cam 30, Figs. 6, 7 and 11, is attached to the plate 5 so as to project through a slot formed in said slide. The slide or actuator is held in the position shown in Figs. 5 and 6, by means of a coiled spring 32, Fig. 5, one end of which is attached to a screw 33 upon the frame and the other to a screw 34 upon the rear end of said slide.

The actuator 24 is adapted to be moved from the outside of the case by means of a thumb-piece 35, Figs. 1 and 9, which extends through a horizontal slot in the casing and is attached to a sliding bar 36 arranged to move in suitable guides and bent at its forward end as shown at 37 to engage with a lug 38 upon the part 24. When the thumb-piece 35 is pushed back the actuator is carried with it, thereby moving the coin into contact with the cam 30 until one edge of the coin is moved out of contact with the rear edge of the groove in the actuator. The coin being thereby released, falls to the secondary position indicated by dotted lines in Fig. 7, when its progress is arrested by contact with the pins 12 and 13. This action causes the pin 13 to be moved out of its normal position so that the contact points 19 and 20, Fig. 4, are caused to touch, thereby closing the electric circuit between the box and the central office and actuating a signal at the latter place. The customer thereupon calls for the desired number, but in case the line is busy, or for any reason the customer fails to establish communication with the party called, the central operator operates a pole changer or other suitable device in such a way as to send a current through the electro-magnet 6 in a direction to tilt the armature in the manner indicated in dotted lines in Fig. 10. This action serves to withdraw the pin 12 from beneath the coin, thereby permitting it to fall upon a ledge 39 shown in Figs. 6 and 7 and indicated in dotted lines in Fig. 5, which ledge forms the bottom of a coin channel 40, Figs. 6 and 10, one side of which is formed by a sheet metal shield 41, also shown in Fig. 8. The usual wire loop or guard 42 serves to arrest the coin. In the event, however, that proper

communication is established between the calling and the one called for, the central operator causes the current through the electro-magnet to be reversed, so as to tilt the armature in the position indicated in full lines in Fig. 10. This causes the coin to fall upon a ledge 43, Figs. 6 and 7, as indicated in dotted lines in the former figure, where it is temporarily arrested. Said ledge is in the nature of a retaining pocket and the coin can be removed therefrom by positive action at the instance of some person at the subscriber's station. The ledge 43 is adjacent to a coin passageway 44, in registration with a slot 45 in the bottom of the case leading to the coin receptacle. One side or wall of the coin channel consists of a removable plate 5^a, Figs. 1, 5, 10 and 11, which is rigidly attached thereto.

Mounted at one end in a suitable bearing in the part 5, and at the other in a frame plate 46, Figs. 1 and 9, is a rock shaft 47, see also Figs. 6, 7 and 8, having a crank-arm 48 thereon provided with a finger 49 upon its end, which is extended through an opening 50 in the part 5. The arm 48 is yieldingly held in the position shown in Figs. 6 and 8 by means of a spiral spring 51, attached thereto and to the frame. The opposite end of the shaft 47 is connected with and arranged to actuate a registering mechanism consisting of suitable printing devices and feeding mechanism inclosed within a case 52, Figs. 1 and 9, and adapted to print or make an impression upon a web 53 upon the deposit of each coin. When the coin is in the retaining pocket, that is to say, in the position shown in Fig. 6, resting upon the part 43, the forward movement of the coin actuator serves to push the coin against the arm 48 thereby tilting the rock-shaft and registering the coin which then falls into the coin receptacle. We do not wish to be confined to any specific form of registering mechanism, but prefer that described and shown in our application filed June 20th, 1904, as Serial No. 213,326, in which a tape or web with a suitable mark or character thereon for each coin deposited is caused to pass by a step-by-step movement from the inclosure containing the registering mechanism through a restricted passage into the coin-box.

In order to prevent the coin passage from becoming clogged in the event of the failure of the armature to release a given coin and the deposit of another while the first remains supported upon the pins 12 and 13, we provide means for positively dislodging said coin before another can be permitted to fall into that section of the channel. Loosely pivoted at 54, Figs. 6 and 7, within a recess 55 in the part 25 of the coin actuator, is a gravity pawl 56 so adjusted as to hang loosely in the pathway of the coin with its back against the shoulder formed by said recess. The opera-

tion of said device is as follows: When the actuator is pushed back to its full limit the coin falls to the secondary position shown in dotted lines in Fig. 7, upon the pins 12 and 13. As soon as the actuator is released it is moved back by means of the spring 32 to its normal position and the coin being then in the pathway of the pawl, the latter is lifted by contact with the coin, and slides over it without producing any effect. Should, however, the operator at the central office fail to actuate the armature before another coin is deposited in the slot in the next forward movement of the actuator, or should the armature fail to act, the pawl 56 will be caused to engage positively with the coin resting upon the pins with sufficient force to tilt the armature against the action of the springs by which it is held, thereby causing the coin to fall to the lowermost position indicated in Fig. 6, when the next forward movement of the actuator will cause its registration and force it into the coin-box in the manner described.

While we have stated that any approved form of coin receptacle can be used, we prefer to employ a tilting box so mounted upon a suitable axis and provided with tape severing means so constructed and arranged that that portion of the registering tape protruding within the box will be severed as a result of opening the box,—thereby disclosing with each opening of the box the amount of coin deposited therein together with a memorandum indicating such amount. Such a construction is represented in our application, Serial No. 213,326, but we prefer the form shown in the accompanying drawings in which the receptacle 4 is pivoted near the bottom and secured by means of a lock 57, the bolt of which is adapted to pass into a recess in the part 2. A cutter 58, Figs. 1, 5 and 6, is so adjusted upon the interior of the tilting box, that when the latter is opened, such portion of tape as may be protruding therein will be severed by said cutter and caused to fall within the box, said severed portion constituting a register of all the coins deposited.

Having thus described our invention, we claim:

1. In a device of the class described, the combination with a main coin-chute divided into stages, from one to the other of which the coin may be progressively transferred, exit channels, one leading from said coin-chute to the exterior of the box and the other to a coin-pocket adjacent to an exit leading to a separate coin-receptacle, two movable stops extending into the coin-channel in advance of said exit channels, a tilting armature, electrical means in operative connection therewith for controlling the same for actuating said stop, and a manually operated coin actuator having primary and secondary mem-

bers, one for moving the coin from a primary to a secondary stage and the other from said coin-pocket to said coin-receptacle.

2. In a device of the class described, the combination with a coin chute, of a manually operated coin actuator having two members arranged to slide in different planes one above the other, the first to positively move a coin from a primary to a secondary position in the chute, while the second serves to move it from a detaining pocket into contact with a registering actuator and thence into a coin receptacle, of an exit leading from said coin chute to the outside, two pins for extending into said coin chute between said actuator members, and electrically controlled means for actuating said pins to direct a coin to said discharge exit or to said detaining pocket.

3. In a device of the class described, the combination of a coin-chute divided into arbitrary stages or rests, of a manually operated coin actuator having a member adapted to positively move the coin from a primary to a secondary stage, two yielding held arresting pins in said chute below said member for temporarily arresting said coin, electrical means for actuating said pins from the central office to release and arbitrarily direct said coin, and a gravity pawl upon said actuator member adapted to slide over said coin when the actuator is moved backward and to

force the same from its arrested position upon the next advance movement of said coin actuator.

4. The combination with a coin-box for telephones, of a coin-chute having receiving, intermediate and discharge sections respectively, of a manually controlled coin actuator having two members arranged to move in unison, one member to transfer a coin from a primary to a secondary position and the other to move a previously deposited coin from an intermediate position into a discharge section, an armature under electrical control from the central office, two pins projecting therefrom into said intermediate coin section for arresting a coin, and means upon the primary member of said actuator for dislodging a coin from said pins upon the next succeeding movement of said actuator, after the lodging of the coin therein, whereby clogging may be prevented should the electrical mechanism fail to act.

In testimony whereof, we have signed this specification in the presence of two subscribing witnesses, this fifth day of December 1904.

FRANK D. POWELL.
CHARLES S. ELLIS.

Witnesses:

D. H. FLETCHER,
CARRIE E. JORDAN.