

No. 754,553.

PATENTED MAR. 15, 1904.

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

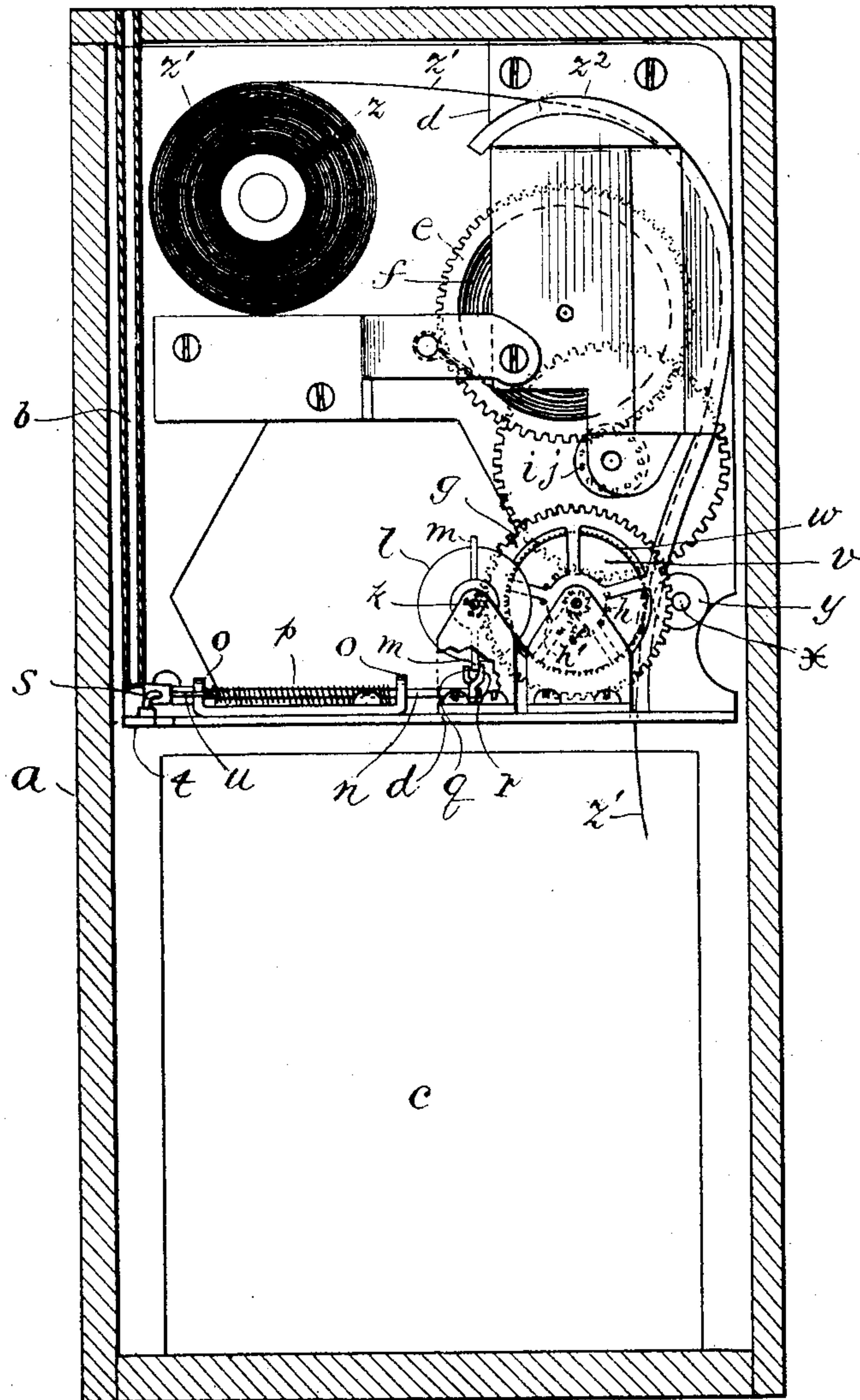
AUTOMATIC REGISTER FOR COIN CONTROLLED MACHINES.

APPLICATION FILED APR. 8, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses,

J. D. Mann,

C. E. Jordan.

Inventors

Charles S. Ellis

Frank D. Powell,

By David H. Fletcher.

their Attys.

No. 754,553.

PATENTED MAR. 15, 1904.

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

AUTOMATIC REGISTER FOR COIN CONTROLLED MACHINES.

APPLICATION FILED APR. 8, 1903.

NO MODEL.

2 SHEETS—SHEET 2.

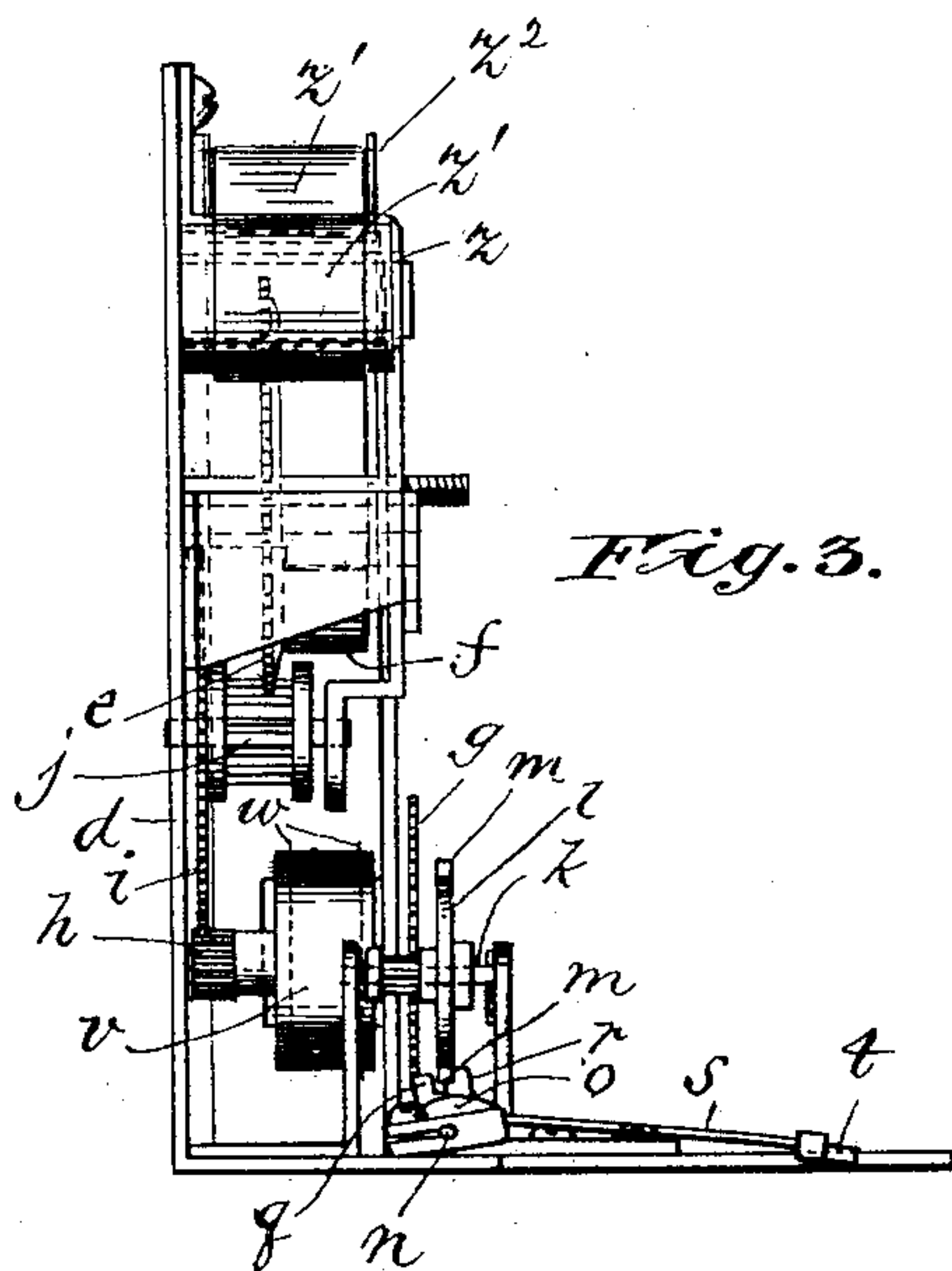
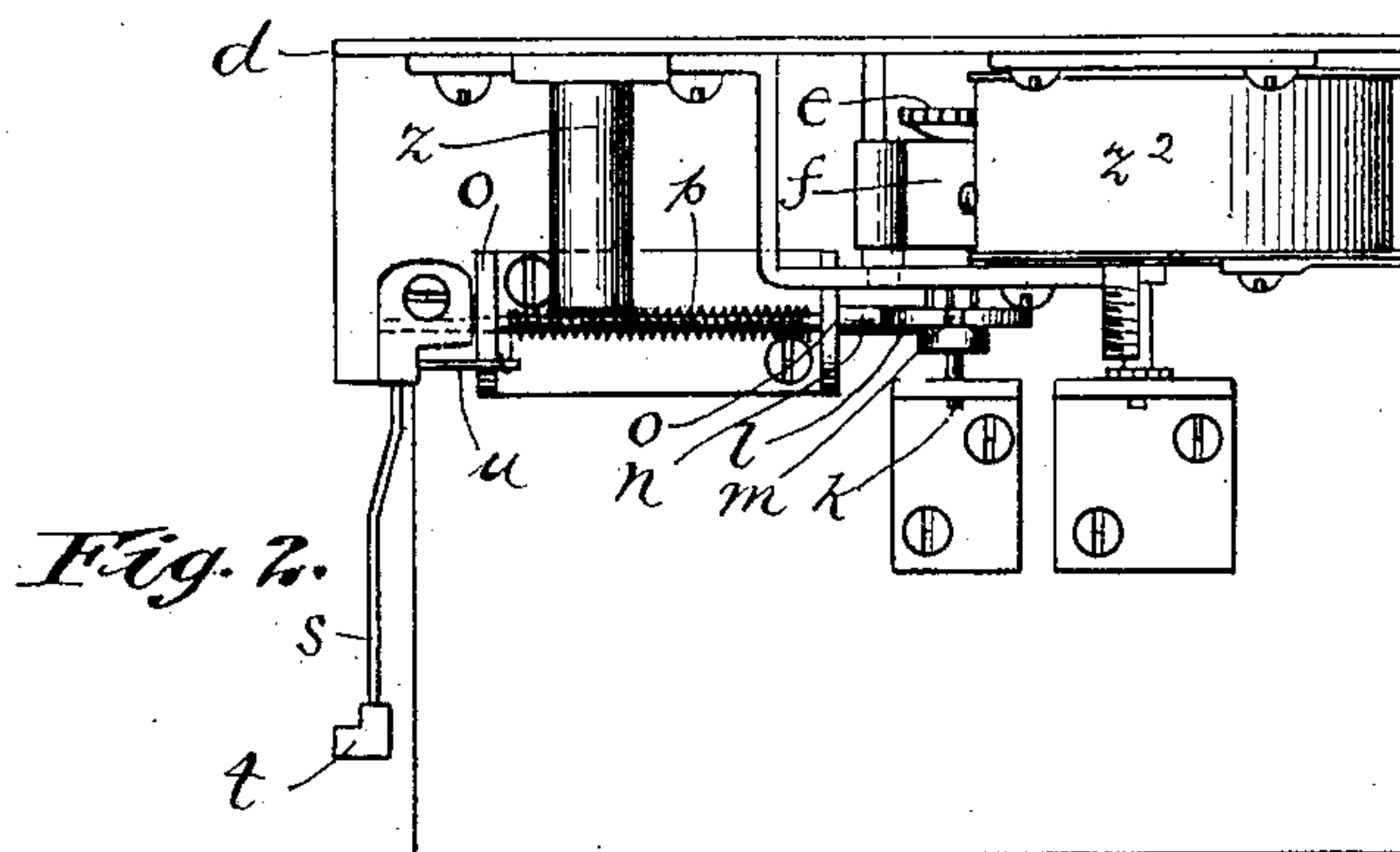


Fig. 4.

210
200
190
180
170
160
150
140
130
120
110
100
90
80

Fig. 5.

15	15
14	14
13	13
12	12
11	11
10	10
9	9
8	8
7	7
6	6
5	5
4	4
3	3
2	2
1	1

Witnesses,  
J. E. Mann,  
C. E. Jordan.

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



# UNITED STATES PATENT OFFICE.

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

## AUTOMATIC REGISTER FOR COIN-CONTROLLED MACHINES.

SPECIFICATION forming part of Letters Patent No. 754,553, dated March 15, 1904.

Application filed April 8, 1903. Serial No. 151,649. (No model.)

*To all whom it may concern:*

Be it known that we, CHARLES S. ELLIS and FRANK D. POWELL, both of Chicago, in the county of Cook and State of Illinois, have jointly invented a new, useful, and Improved Automatic Register for Coin-Controlled Machines, of which the following is a full, clear, and exact 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 an automatic registering device adapted to be used in connection with coin-controlled machines—such, for example, as telephones, vending apparatus, and the like—whereby as each coin is dropped into the slot leading to the receptacle intended to receive it a permanent and accurate record may be made thereof of such a character as to form a check upon the user of the machine and the collector of the coin, while furnishing protection to the owner, the user, and the collector, all of which is hereinafter more particularly described, and definitely pointed out in the claims.

In the drawings, Figure 1 is a transverse vertical sectional view of the case of a coin-controlled machine, showing the usual coin-slot and coin-receiving receptacle with our improved registering mechanism applied thereto. Fig. 2 is a plan view of said registering mechanism only. Fig. 3 is an end elevation thereof. Fig. 4 is a detailed view of a portion of one of the registering-tapes, and Fig. 5 is a like view of a modified form of tape.

Inasmuch as our improved registering device is not in any way connected with the movable parts or operative mechanism of a coin-controlled machine, but only with the slot or passage through which the coin is passed, we have not deemed it necessary to show any of the coin-controlled parts, but merely the receptacle to which any well-known mechanism of that character may be applied, it being assumed, of course, that the registering device is so placed with reference to the receptacle

as to be acted upon after the coin shall have passed the controlling mechanism.

Referring to the drawings, *a* represents the inclosing case of an ordinary coin-controlled machine having the slot *b*, through which the coin may be dropped to pass into the usual locked receptacle *c*. In the upper part of said case, above the coin-receptacle, is a chamber intended to contain the usual coin-controlled mechanism and also that of my improved registering device, one mechanism being located in the front and the other in the rear of said chamber or otherwise disposed, as may be found most convenient. The coin-controlled mechanism is not shown. The frame *d* of the registering device is rigidly attached to the bottom plate of the casing. Mounted within said frame is a clock-train, of which *e* is the main driving-wheel adapted to be actuated in the usual way by means of a coiled spring *f*. A gear *g*, connected by means of an intervening pinion *h*, gear *i*, and pinion *j* with the driving-gear, is in turn in engagement with a pinion upon a shaft *k*, upon which is mounted an escapement-wheel *l*, having, preferably, two teeth *m m* thereon, located diametrically opposite to each other. A rock-shaft *n* is placed horizontally and supported in bearings *o o*, Figs. 1 and 2, in a plane at right angles to that of the shaft *k*. Said shaft is surrounded by a light coiled spring *p* for holding it in a normal position. A fitting is rigidly attached to the end of said rock-shaft immediately beneath the escapement-wheel *l*, which fitting is provided with pallets *q r*, said pallets being located in planes parallel to each other and at right angles to the axis of said rock-shaft, as shown in Fig. 1, the pallet *q* being located upon the left and the pallet *r* upon the right side of said rock-shaft, as viewed in Fig. 3. Upon the opposite end of said rock-shaft and extending laterally therefrom is an arm *s*, to the free end of which is attached a contact-piece *t*, which lies directly beneath and in the plane of the slot *b*. A pin *u*, Figs. 1 and 2, by engagement with the frame serves to limit the downward movement of the arm



s. The movement of the rock-shaft in an opposite direction may be limited by the pallet-piece, the bottom of which is intended to be stopped by engagement with the frame or by other obvious means. When a coin is dropped through the slot *b*, it strikes the part *t*, and its weight depresses the arm to its full limit, when the coin falls into the receiver *c*. The depression of the arm rocks the shaft *n* sufficiently to release the detent *m* from contact with the pallet *r* and causes the pallet *q* to be brought into the plane of the escapement-wheel. The detent having been released, the escapement-wheel, impelled by the spring-actuated train, is caused to make half of a revolution, when the next detent or escapement tooth is arrested by contact with the pallet *q*, then lying in its path. As soon, however, as the contact-piece *t* is relieved of the weight of the coin it is restored to its normal position by the recoil of the spring *p*, thereby rocking the shaft and causing the pallet *q* to escape from engagement with the detent *m* and the pallet *r* to move into its path and in turn to engage and hold said escapement-wheel against further movement until the shaft is again rocked. In this way a fixed movement is imparted to the shaft of the gear-wheel *g*, upon which is rigidly mounted a drum *v*, having two rows of short radially-projecting pins *w w* upon its periphery.

Mounted upon a stud *x*, Fig. 1, secured to the frame, is a roller *y*, which bears against the periphery of the drum *v* and is provided with two circumferential grooves (not shown) corresponding in position and adapted to receive the pins *w* as the drum *v* is rotated.

Attached to the frame is a spool *z*, upon which is mounted a roll *z'* of tape. (Shown in Figs. 1 and 3.) The web or tape is carried from the roll over a curved sheet-metal guide *z''* and thence downwardly between the drum *v* and roll *y* through a slot or opening in the bottom of the frame into the money-chamber *c*. As the tape passes between the drum and roll it is indented or punctured by the pins *w*, which insure its uniform passage and prevent it from being slipped or moved in either direction independent of the movement of the drum. In order to prevent a backward movement of the drum in case any attempt should be made to tamper with the mechanism, I place a ratchet-wheel *h'*, Fig. 1, upon the shaft upon which said drum is mounted, which ratchet-wheel is engaged by a spring-actuated pawl, which permits the shaft to rotate only in one direction. The tape *z'* is graduated and numbered consecutively, as shown in Fig. 4, the distance between the numbered spaces corresponding to the extent of movement of the periphery of the drum *w* with each movement of the escapement-wheel.

The operation of said registering device is as follows: When a coin is dropped into the slot, it strikes the contact element *t*, depresses

it, rocks the shaft *n* in one direction, releases the escapement-wheel, and falls into the coin-receptacle. The escapement-wheel having partially rotated is arrested by the return of the rock-shaft to its normal position. In the meantime the drum *v* will have fed a portion of the tape *z'* into the coin-receptacle corresponding to one space on said tape, as indicated by the numbers thereon, and with the dropping of each coin a corresponding length is added, so that when the assembled coins are removed if the tape projecting into the coin-receptacle be torn off the number of spaces thereon will indicate the number of coins removed. For example, the fragment of tape shown in Fig. 4 is numbered from "8" to "21," inclusive. This would indicate that a portion of the tape representing seven coins had previously been torn off and that the coins removed together with the fragment shown would aggregate twenty-one, the highest number on the tape. Deducting seven from that would leave fourteen, the proper number. Should duplicate vouchers be desired for use by the collector and customer, for example, two tapes corresponding in numbers may be run off from the reel at the same time, or a single tape bearing duplicate numbers, as shown in Fig. 5, and provided with perforations between the numbers, as indicated in dotted lines, may be employed, in which case the fragment removed with the coin may be torn apart lengthwise and one part left with the user of the machine, while the other is retained by the collector.

It should be understood that the entire registering mechanism of the machine should be so inclosed and locked or sealed that the person removing the coin can have no access thereto, but can only tear, cut, or otherwise remove the protruding portion of the tape, and inasmuch as the train of gears is normally locked against movement by the escapement mechanism except as released by the coin and inasmuch as the pins on the feed-roll prevent the paper from being moved without mutilation it follows that there can be no motive for removing more or less than the exact quantity of tape represented by the coins.

The tapes of course are by preference all accurately printed before insertion, and each may bear a distinctive number repeated at intervals either upon the back or front, which may be known as the "tape-number," to be used only for auditing purposes in addition to the numbers intended to designate the coins, or, if desired, such auditing numbers or characters may be in cipher. In this way each fragment of a given roll may be identified and any substitution or change readily detected.

It is obvious that the web or tape may be graduated by merely puncturing a hole therein corresponding to each coin and that the consecutive numbers may be omitted, in which case it would be necessary to count the punc-



tures in order to verify the registration. Such puncturing might be accomplished by means of the pins *w* upon the feed-drum, in which case it is obvious that the peripheral spacing of the pins should bear such a relation to the movement of the escapement-wheel that a puncture would be made with each movement of the latter, and when we use the term "graduated" in the claims we wish to be understood as referring to a graduated element, such as a web or tape, which may be graduated by means of marks, numbers, indentations, or punctures made either before or after the web is placed in the machine—that is to say, by a separate machine used before or simultaneously by the registering mechanism itself.

It is obvious that the mechanism may be varied without departing from the principle involved, which embodies a registering-web in connection with a coin-receiving receptacle, the web being preferably wholly inclosed within a primary locked or sealed inclosure, from which it is automatically and positively fed by mechanism within said sealed inclosure through a restricted aperture into a secondary locked or sealed inclosure, means being provided for alternately arresting and releasing the feeding mechanism, so that the coin inserted within the coin-receptacle may be accurately registered by that portion only of the web which is fed into the secondary inclosure. It is obvious that the whole of the said registering mechanism need not be incased or inclosed provided a sufficient portion thereof is protected from unauthorized manipulation to prevent it from being tampered with without being practically destroyed.

Having thus described our invention, we claim—

1. The combination with a coin-receiving receptacle, of a registering-web protected against unauthorized manipulation, a locked or sealed inclosure and means for intermittently feeding a predetermined portion of said web into said inclosure with each impulse of said feeding mechanism.

2. The combination with a coin-receiving receptacle, of a registering-web protected against unauthorized manipulation, a locked or sealed inclosure, and means for automatically feeding a portion of said web into said locked or sealed inclosure to conform respectively to each coin placed in said coin-receiving receptacle.

3. The combination with a coin-receiving receptacle, of a coin-registering mechanism inclosed within a locked or sealed inclosure, said mechanism consisting of a registering-web, means for feeding said web out of said inclosure through a restricted aperture into a secondary locked or sealed inclosure, means for actuating said feeding mechanism, means for normally arresting the movement thereof, and means for releasing said arresting mechanism.

4. The combination with a coin-receiving receptacle, of a coin-registering mechanism inclosed within a primary locked or sealed inclosure, said mechanism consisting of a registering-web, means for positively feeding said web, step by step out of said primary inclosure through a restricted aperture into a secondary locked or sealed inclosure, a motor element, and means for releasing the same whenever a coin is inserted within the coin-receiving receptacle.

5. The combination with a coin-receiving receptacle, of a coin-registering mechanism inclosed within a primary locked or sealed inclosure, said mechanism consisting of a registering-web, means for feeding said web step by step out of said primary inclosure through a restricted aperture into a secondary locked or sealed inclosure, means for releasing said feeding mechanism, and means for positively preventing a backward or forward movement of the web when the feeding mechanism is at rest.

6. The combination with a coin-receiving receptacle, of a coin-registering mechanism consisting of a registering-web, means for feeding said web step by step through a restricted aperture, means for protecting said feeding mechanism against unauthorized manipulation, a locked or sealed inclosure for receiving said web as it is fed through said aperture, means for releasing said feeding mechanism, and means for preventing a backward or forward movement of said web when the feeding mechanism is at rest.

7. The combination with a coin-receiving receptacle, of a coin-registering mechanism inclosed within a separate locked or sealed inclosure, said registering mechanism consisting of a registering-web, means for feeding said web out of said inclosure through a restricted aperture, means for actuating said feeding mechanism, means for normally arresting the movement thereof, means for releasing said arresting mechanism by the impact of a coin, and means within said inclosure for indenting or puncturing said web as it is advanced, said indenting or puncturing means being in constant positive engagement therewith, whereby an unauthorized movement of said web will cause its mutilation.

8. The combination with a coin-receiving receptacle, of a coin-registering mechanism inclosed within a locked or sealed inclosure, said mechanism consisting of a registering-web, means for feeding said web out of said inclosure through a restricted aperture into a secondary locked or sealed inclosure, means for actuating said feeding mechanism, means for normally arresting the movement thereof, and means for releasing said arresting mechanism by the impact of a coin.

9. The combination with a coin-receiving receptacle, of a coin-registering mechanism inclosed within a locked or sealed inclosure,



said mechanism consisting of a registering-web, means for feeding said web out of said inclosure through a restricted aperture into a secondary locked or sealed inclosure, means  
5 for actuating said feeding mechanism, means for normally arresting the movement thereof, means for releasing said arresting mechanism by the impact of a coin, means within said inclosure for indenting or puncturing said  
10 web as it is advanced, said indenting or puncturing means being in constant positive engagement with said web and means for normally locking said puncturing device against movement.  
15 10. A coin-registering mechanism in which is combined a motor element, a train of gears, means for normally locking said train against movement, means for temporarily releasing said locking mechanism by the impact of a  
20 coin, a registering-web, and a web-feed mechanism for feeding said web a predetermined distance with each release of the locking mechanism consisting of opposing rolls, one of which is provided with peripheral teeth for

indenting or puncturing said web as it is fed thereto. 25

11. A coin-registering mechanism in which is combined a motor element, a train of gears, an escapement mechanism for normally locking said train against movement, means for  
30 releasing said escapement by the impact of a coin, a graduated web, and a feed mechanism for feeding said web a predetermined distance with each movement of the escapement, said feed mechanism consisting of opposing  
35 rolls, one of which is provided with peripheral teeth for puncturing said web as it is fed thereto, thereby preventing an unauthorized or forced passage of the web between the rolls without mutilation. 40

In testimony whereof we have signed this specification, in the presence of two subscribing witnesses, this 6th day of April, 1903.

CHARLES S. ELLIS.  
FRANK D. POWELL.

Witnesses:

DAVID H. FLETCHER,  
CARRIE E. JORDAN.