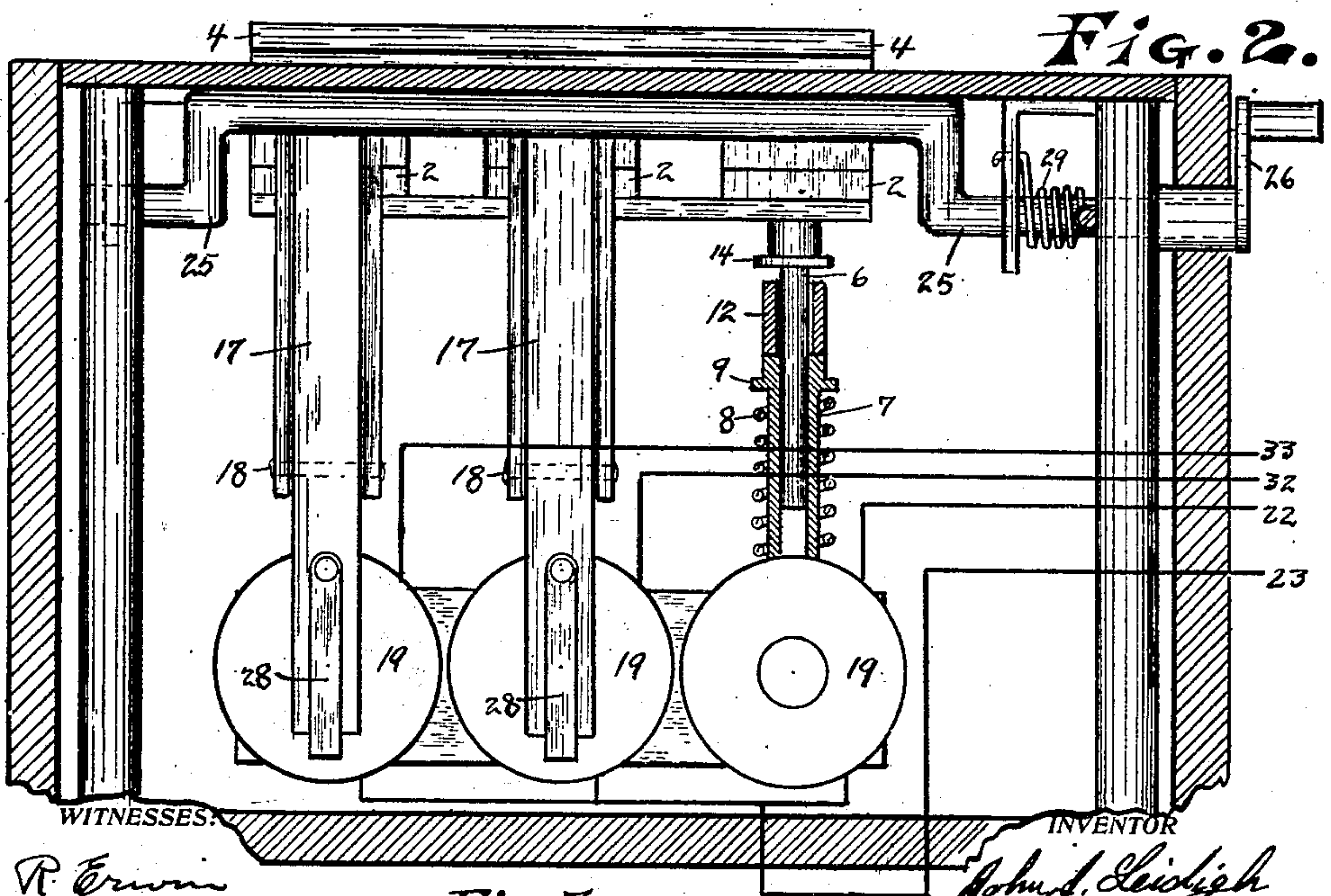
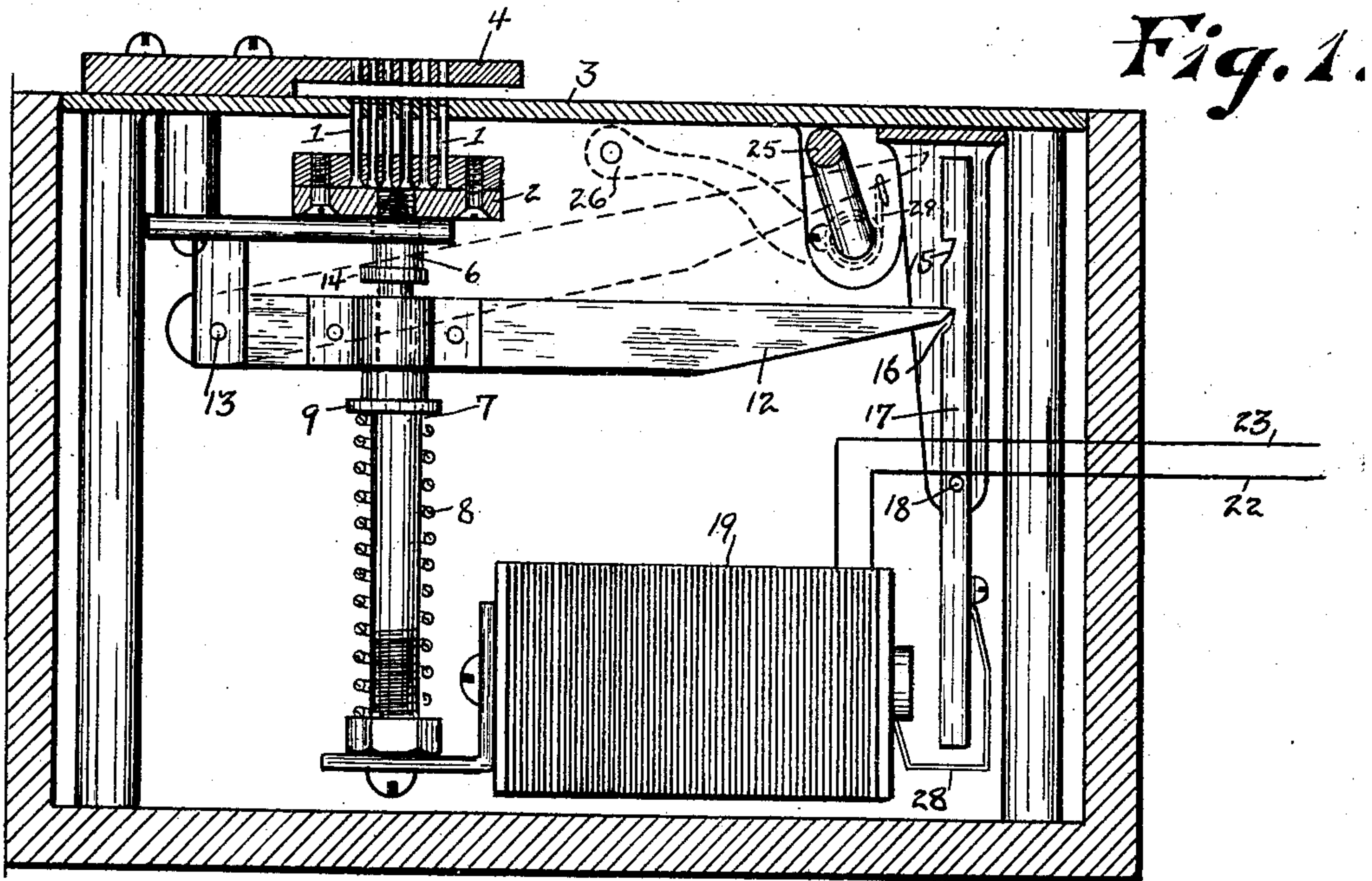


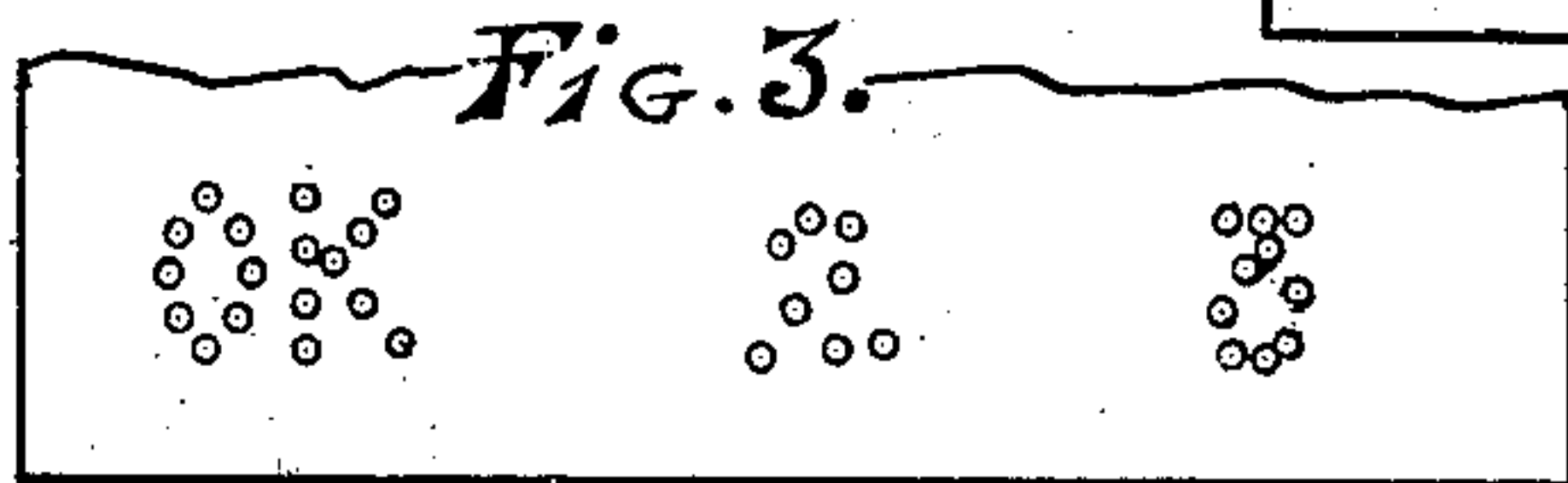
J. J. LEIDIGH.
ELECTROMAGNETIC PUNCH.
APPLICATION FILED SEPT. 10, 1906.

917,955.

Patented Apr. 13, 1909.



WITNESSES:
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UNITED STATES PATENT OFFICE.

JOHN J. LEIDIGH, OF MILWAUKEE, WISCONSIN.

ELECTROMAGNETIC PUNCH.

No. 917,955.

Specification of Letters Patent.

Patented April 13, 1909.

Application filed September 10, 1906. Serial No. 333,890.

To all whom it may concern:

Be it known that I, JOHN J. LEIDIGH, a citizen of the United States, residing at Milwaukee, county of Milwaukee, and State of Wisconsin, have invented new and useful Improvements in Electromagnetic Punches, of which the following is a specification.

My invention relates to improvements in electro-magnetic punches, designed especially for use in connection with credit marking systems of the class described in my former application, #324,363, filed July 2, 1906, in which a credit slip at a department sales station is punched to indicate the financial standing of a customer by means of mechanism controlled electro-magnetically from a central station or main office.

The object of this invention is to provide mechanism which can be operated once from the central office, and which, after punching a ticket with a credit mark, can not be again used until reset by the clerk of the department station, and locked during the resetting operation against a possible use by the department clerk to punch one or more additional tickets fraudulently.

A further object of my invention is to provide means for stamping or punching an identification mark or character in the credit slip indicative of the person operating the punch, and a still further object is to provide a reliable mechanically actuated but electrically controlled punch.

In the following description reference is had to the accompanying drawings in which,

Figure 1 is a side view of a punch embodying my invention, showing the casing in cross section, and with parts of the punch controlling lever, and of the resetting crank rod broken away. Fig. 2 is a front elevation showing the casing in section and exposing a set of three punches for one station, the trip lever of one of the punches being removed to show the punch, and the punch controlling lever being shown in cross section. Fig. 3 is a face view of the punch pins of one of the punches.

Like parts are identified by the same reference characters throughout the several views.

The punch pins 1 are mounted upon a punch head 2 and operate through holes in the table 3 in connection with a die 4. The punch head 2 is mounted upon a rod 6 which

moves in a hollow guide post 7, and a compression spring 8, on the post, bears against a collar 9 on the rod 6 and tends to push the punch rod and punch in the direction of the die. The punch is normally held in retracted position, however, by a punch controlling lever 12, pivoted at 13 to the frame and extending between the collars 9 and 14, both of which are rigidly secured to the punch rod. The front end of this lever 12 is adapted to engage in notches 15 or 16 in a trip lever 17 and when so engaged the punch is held in a retracted position against the pressure of the spring 8. The trip lever 17 is pivoted to the frame at 18 and is actuated to release punch controlling lever 12 by an electro-magnet 19, the lower end of lever 17 being of magnetizable material. The electro-magnet is connected by lines 22 and 23 with the central office so that the person there in charge operates the punch by sending an electrical current through the magnet to actuate the trip lever.

When the punch controlling lever 12 is released the punch is actuated by the spring 8 and the lever 12 is lifted to the position in which it is shown by dotted lines in Fig. 1. A ticket in the path of the punch pins will therefore not only be perforated but will be locked in position by the pins until the latter are retracted by depressing the controlling lever 12, and this can only be accomplished in the construction illustrated, by partially rotating a crank rod 25 which projects through the casing and is provided with an exterior crank 26. The offset portion, or crank arm of this rod, extends over the lever 12 and when the crank is actuated this crank arm forces the lever 12 downwardly against the tension of the spring 8 to retract the punches and release the ticket. When the lever reaches the notch 15 in the trip lever, the punches will not have been retracted sufficiently to release the ticket, but the trip lever will then prevent the spring 8 from again lifting the lever 12 by permitting lever 12 to engage in this notch. To release the ticket therefore and adjust the punch for the reception of another ticket it is necessary to rotate the crank shaft sufficiently to depress lever 12 to position for engagement in notch 16 of the trip lever. A quick action of the trip lever in locking lever 12 in position is secured by providing the lower end of the trip lever with a spring 28 which

bears against the electro-magnet or the frame thereof and tends to push the trip lever to normal, or locking position.

The working mechanism of the punch, except the resetting crank 26, is wholly enclosed within the casing and cannot be reached by the person in charge of the department. It will therefore be obvious that as it is necessary for the punch controlling lever 12 to pass notch 15 in the trip lever before the ticket is released, it is impossible for the department clerk to manipulate it so as to have two tickets punched after one electro-magnetic release. It is also impossible to remove the first ticket and leave the punch in position for the insertion of the next without resetting lever 12 in notch 16 where it can only be again released by an electrical impulse from the central office. While the notch 15 is so located that it will receive the end of lever 12 before the withdrawal of the punch, it is also so located that if the lever should be depressed nearly to notch 16 and a substitution of tickets made a return of the lever to notch 15 would not permit the punches to lift sufficiently to perforate the second ticket.

Referring to Fig. 2, it will be observed that I have provided a plurality of punches, and punch setting and trip mechanisms in a single casing. By providing a set of these punches and separate trip mechanisms for each with separate conducting wires 22, 32 and 33, to the central office for each operator at that office and a common return wire 23, I am enabled to use punches which will not only indicate the credit mark, but also punch into the slip a character which identifies the individual punch and therefore the central operator with whose desk the individual punch is electrically connected. An arrangement of punch pins for this purpose is indicated in Fig. 3 in which letters O. K. are the credit mark and the number 2 identifies an operator at the second desk in the central station. It will be understood, however, that any differential arrangement of the punch pins of the respective punches may be employed for identification whether by an index character as illustrated, or by using different credit indicating letters, or letters of different style.

Various other modifications in the arrangement of parts or the mechanical structure of the device within the scope of this invention will be suggested to the mind of the ordinary mechanic familiar with this art, and I do not limit my invention to the specific features shown and described, but recognize the possibility of considerable variations in structure.

The post 7 is preferably provided with an adjustable nut 40, whereby the tension of the spring 8 may be varied. By a proper adjustment of the nut, the spring will be ca-

pable of forcing the punches through but one ticket at a time, or through a single set of tickets where duplicates, triplicates, etc., are used.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is,

1. In a device of the described class, the combination of a ticket receiving die member, a mechanically actuated punch in operative relation thereto, a punch retracting device, an automatic lock adapted to move into punch holding position, during the retractive movement of the punch and preparatory to the release of the ticket, and electro-magnetic mechanism for releasing said lock.

2. In a device of the described class, the combination of a ticket receiving die member; a punch operatively located with reference to the die member; a punch actuating device; a punch retracting lever; a trip for locking the lever in retractive position; manually actuated means for setting the trip in locking position; said trip setting means being inoperative to release the trip and electro-magnetic mechanism for releasing the trip; a housing arranged to prevent the release of the trip by any other means than said electro-magnetic mechanism said trip being arranged to move to locking position before the punch is wholly withdrawn from a ticket after a punching operation.

3. In a device of the described class, the combination with a chamber having a normally inaccessible interior, and having therein a punch provided with projections adapted to pass through apertures in the chamber wall, punch actuating mechanism, a punch retracting device, a trip normally holding said device in retractive position, and electro-magnetic mechanism for releasing the trip, of an exterior ticket receiving die member operatively located with reference to the punch, and a manually actuated resetting device extending through the chamber wall and adapted to actuate the punch retracting device.

4. In a device of the described class, the combination with a chamber having a normally inaccessible interior, and having therein a punch provided with projections adapted to pass through apertures in the chamber wall, punch actuating mechanism, a punch retracting device, a trip normally holding said device in retractive position, and electro-magnetic mechanism for releasing the trip, of an exterior ticket receiving die member operatively located with reference to the punch, and a resetting device extending through the chamber wall and adapted to actuate the punch retracting device; said trip being adapted to lock the punch retracting device in both partial and full retractive positions against a return to

ticket punching position except through trip release by electro-magnetic action.

5. In a device of the described class, the combination with a chamber having an exterior ticket receiving die, and a normally inaccessible interior; of a spring actuated punch located therein and arranged to operate in registry with said die, through apertures in its wall; a punch controlling lever; a trip lever adapted to engage the punch controlling lever in a plurality of retractive positions; and electro-magnetic mechanism, arranged, when energized, to move the trip lever to releasing position.

6. In a device of the described class, the combination with a chamber having an exterior ticket receiving die, and a normally inaccessible interior; of a spring actuated punch located therein and arranged to operate in registry with said die, through apertures in its wall; a punch controlling lever; a trip lever adapted to engage the punch controlling lever in a plurality of retractive positions; and electro-magnetic mechanism, arranged, when energized, to move the trip lever to releasing position; together with a ticket receiving die operatively located on the exterior of the casing over the punch apertures, and a resetting device for the punch controlling lever extending through the casing wall.

7. In a device of the described class, the combination with a chamber having an exterior ticket receiving die, and a normally inaccessible interior; of a spring actuated punch located therein and arranged to operate in registry with said die, through apertures in its walls; a punch controlling lever; a trip lever adapted to engage the punch controlling lever in a plurality of retractive positions; and electro-magnetic mechanism, arranged, when energized, to move the trip lever to releasing position; together with a ticket receiving die operatively located on the exterior of the casing over the punch apertures, and a resetting device for the punch controlling lever extending through the casing wall, said resetting device comprising a rotary crank rod provided with an offset portion extending over the controlling lever.

8. In a device of the described class, the combination with a chamber having an exterior ticket receiving die, and a normally inaccessible interior; of a spring actuated punch located therein and arranged to operate in registry with said die, through apertures in its wall; a punch controlling lever; a trip lever adapted to engage the punch controlling lever in a plurality of retractive positions; and electro-magnetic mechanism, arranged, when energized, to move the trip lever to releasing position; said trip lever being adapted to engage the controlling lever with the punch partially

retracted and in a ticket holding position, and also in a position with the punch wholly retracted to ticket releasing position.

9. In a device of the described class, the combination with a chamber having an exterior ticket receiving die, and a normally inaccessible interior; of a spring actuated punch located therein and arranged to operate in registry with said die, through apertures in its wall; a punch controlling lever; a trip lever adapted to engage the punch controlling lever in a plurality of retractive positions; and electro-magnetic mechanism, arranged, when energized, to move the trip lever to releasing position, together with a spring adapted to hold the trip lever normally in locking position.

10. In a device of the described class, the combination with a chamber having an exterior ticket receiving die and a normally inaccessible interior; of a set of punches and punch actuating mechanism located therein and provided with differential sets of punch pins adapted to move through apertures in the chamber wall to said exterior die; means for locking said punches in retractive position; and electro-magnetic devices for separately releasing the punches.

11. In a device of the described class, the combination with a chamber having an exterior ticket receiving die and a normally inaccessible interior; of a set of punches and punch actuating mechanism located therein and provided with differential sets of punch pins adapted to move through apertures in the chamber wall to said exterior die; means for locking said punches in retractive position; and electro-magnetic devices for separately releasing the punches, together with a resetting device extending through the chamber wall and adapted to retract a released punch to normal position.

12. In a device of the described class, the combination with an inclosing housing provided with an opening, and a ticket receiving die member mounted on its exterior surface opposite such opening, of a mechanically actuated punch within the housing, in operative relation to said die member, a punch retracting device, an automatic lock within the housing adapted to move into punch holding position during the retractive movement of the punch and preparatory to the release of the ticket, and means for releasing said lock from a distant point.

13. In a device of the described class the combination in a closed receptacle, of a punch, a spring for actuating the same, a device for locking said punch both in a position of partial retraction and in a position of entire retraction, a lock setting device, and a lock releasing device having actuating connections extending to a distant point.

14. In a device of the described class, the

combination of a ticket receiving die member, a mechanically actuated punch in operative relation thereto, an apertured wall interposed between the punch and die member, a punch retracting device, an automatic lock adapted to move into punch holding position during the retractive movement of the punch and preparatory to the release of the ticket, and an unlocking mechanism, 10 said wall being arranged to prevent access to the lock and unlocking mechanism from

that side occupied by the die, and said die being arranged to cooperate with the punch in preventing the release of a perforated ticket pending the punch retracting and 15 locking operations.

In testimony whereof I affix my signature in the presence of two witnesses.

JOHN J. LEIDIGH.

Witnesses:

LEVERETT C. WHEELER,
O. R. ERWIN.