D. O. LAWRENCE.

INDICATOR.

APPLICATION FILED JULY 22, 1910. RENEWED OCT. 10, 1914.

1,138,124.

Patented May 4, 1915.

2 SHEETS—SHEET 1.

Fig. 1.

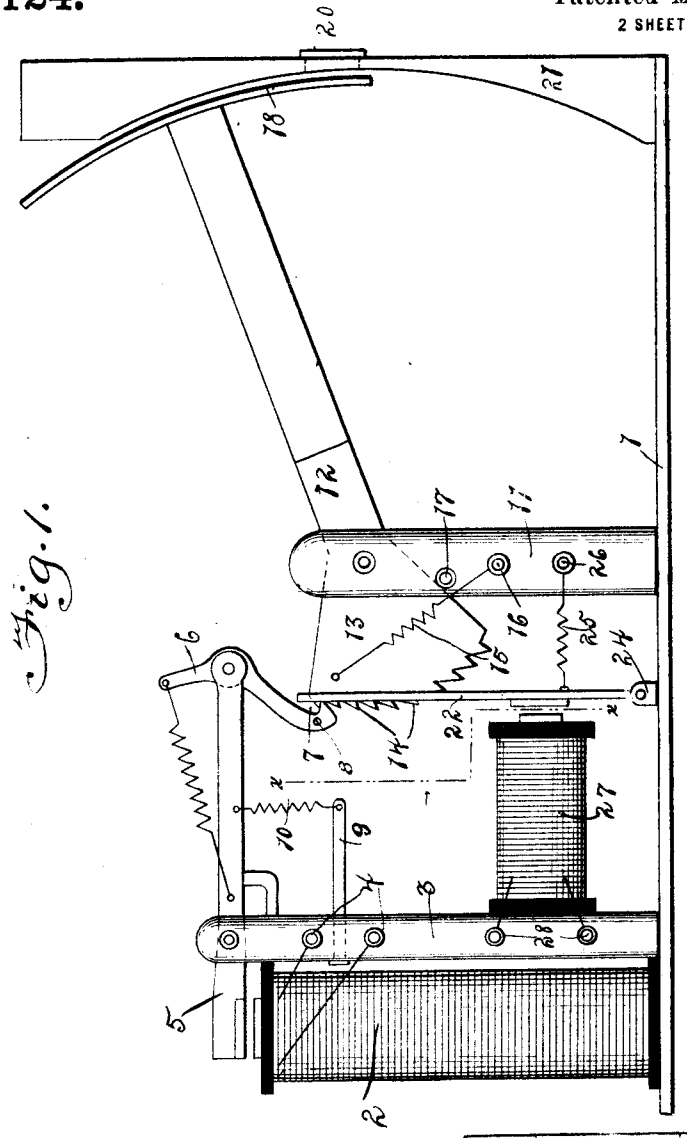


Fig. 3.

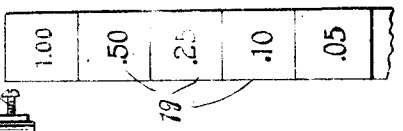
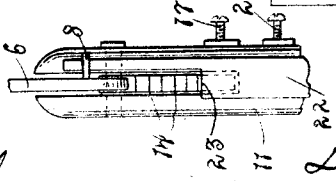


Fig. 2



WITNESSES

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2 SHEETS—SHEET 2.

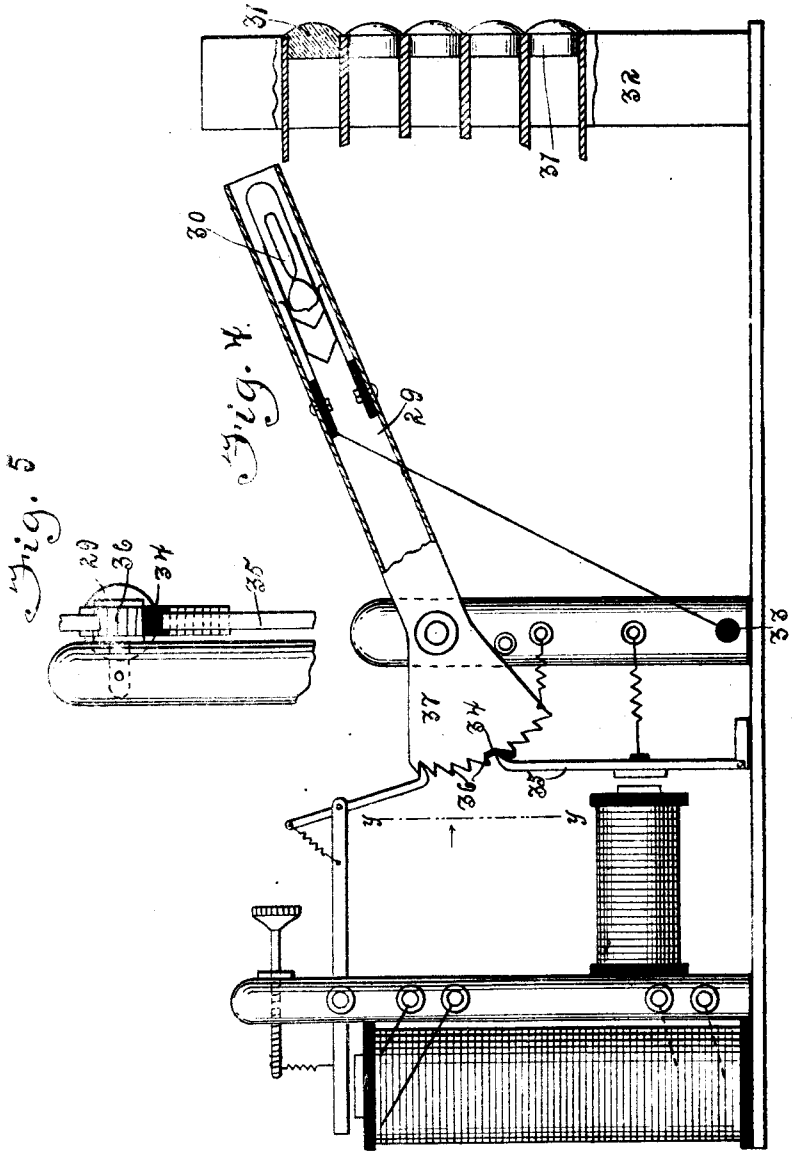


Fig. 4.

Fig. 5.

WITNESSES

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UNITED STATES PATENT OFFICE.

DANIEL O. LAWRENCE, OF COLUMBUS, NEBRASKA, ASSIGNOR OF ONE-THIRD TO C. J. GARLOW, OF COLUMBUS, NEBRASKA, AND ONE-THIRD TO C. J. COTTINGHAM, OF LOS ANGELES, CALIFORNIA.

INDICATOR.

1,138,124. Specification of Letters Patent. Patented May 4, 1915.

Application filed July 22, 1910, Serial No. 573,257. Renewed October 10, 1914. Serial No. 866,136.

To all whom it may concern:

Be it known that I, DANIEL O. LAWRENCE, a citizen of the United States, residing at Columbus, in the county of Platte and State of Nebraska, have invented new and useful Improvements in Indicators, of which the following is a specification.

My invention relates to an indicator adapted to be used in connection with a slot machine to be used at the pay station end of a telephone line similar to that disclosed by my co-pending application Serial Number 567,247 filed June 16, 1910.

The object of my invention is to provide an indicator which can be used with a slot machine such as that above referred to which will indicate to the operator at the central office the denomination of the coin dropped in the slot.

Another object of my invention is to provide an indicator having a movable target or other similar device which is moved into different positions by successive electrical impulses conveyed to the central office from the pay station instrument.

With the foregoing and other objects in view, my invention consists in such details of construction and in the arrangement and combination of parts as will be hereinafter more fully described and specifically pointed out in the appended claims.

In describing my invention in detail, reference will be had to the accompanying drawings in which like characters denote like or corresponding parts throughout the several views, and in which,

Figure 1 is a view in side elevation of my invention. Fig. 2 is a detail view taken on the line X—X of Fig. 1. Fig. 3 is a front view of the target member. Fig. 4 is a view similar to Fig. 1 showing a slightly modified form of my invention, and Fig. 5 is a detail view taken on the line Y—Y of Fig. 4.

In carrying my invention into practice I employ a suitable base 1, and mount thereon an electro-magnet 2 the current for which is conducted from the slot machine hereinbefore mentioned to the binding post connections 4 upon the upright 3 which is also mounted upon the base 1. The upper end of the member 3 has pivoted thereto a lever 5 which acts as an armature coöperating with the magnet 2, said lever having pivotally mounted upon its outer end a smaller lever 6 which has its lower end formed into a pawl 7. A pin 8 projects from a side of one of the arms of the lever 6 for a purpose which will hereinafter appear. Extending from the upright 3 is a stud 9 which carries a spring 10 connecting it with the lever 5 so as to hold the armature end of the latter normally out of contact with the magnet.

A second upright 11 pivotally carries a lever 12 having a broad flat end 13 provided with serrations or teeth 14 which are adapted to be engaged by the pawl 7. This end of the lever is normally held in its lowermost position by means of a spring 15 connected to it and to the pin 16 on the post 11, another pin 17 being provided so as to engage the lever 12 and prevent excessive downward movement.

The outer end of the lever 12 is formed with a target 18 which is divided into a number of spaces, one of which is blank and the others provided with figures denoting coins of different value, the highest figure being placed in the uppermost space. These figures are visible through a window 20 located in a front-piece 21.

A lever 22, having a shoulder 23 adapted to engage the teeth 14 is pivoted to the base 1 at 24, said engagement being normally effected by means of a spring 25 connected to said lever and to the pin 26 on the upright 11.

It will be seen that when an electrical impulse is passed through the coil 2 the armature 5 is pulled down and the pawl 7 caused to raise the inner arm of the lever 12, the outer end carrying the target being lowered so as to bring another one of the spaces 19 into view. The shoulder 23 catches one of the teeth 14 and prevents the lever from returning to its normal position. Now, if another impulse is passed through the coil the pawl 7 will raise the toothed end of the lever so as to show another space through the window 20, said pawl having in the meantime been moved to its normal position, traveling over the teeth 14, by means of the spring 10. The target will thus be moved downward as many times as there are impulses passed through the coil, the shoulder 23 on the lever 22 preventing return to the normal position in each case.

To release the target when it is so de-

sired, I have placed another electro-magnet 27 upon the upright 3, binding posts 28 being provided to which the terminals of the coil are connected. It will be seen that when this coil is energized the lever 22 is attracted, the shoulder 23 being thus disengaged from the teeth 14. At the same time the upper end of the lever comes into contact with the pin 8 whereby the pawl 7 is also released from the teeth. This combined movement permits the spring 15 to draw the parts to their normal positions. The coil 27 may be energized by the operator at the central office in any desired way.

In Fig. 4 I have shown a modification of my idea. In this form I substitute for the lever 12 a tube 29, an electric light 30 being placed within the tube, the mouth of which is adapted to register with each of a number of windows 31 arranged in the front-piece 32. The lever 35 engages the teeth 36 in the flattened end 37 of the tube, a layer of insulation 34 being suitably disposed to prevent short circuiting.

It will also be understood that other modifications may be employed which I have not shown, for I do not wish to be limited to the exact construction disclosed and described herein. Slight changes in construction and in the arrangement and combination of parts may be resorted to without departing from the spirit and scope of my invention, provided such changes fall within the scope of the appended claims.

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

1. In a device of the character described, a lever having teeth formed at one end, indicating means carried at the other end of said lever, an electro-magnet, a rocking armature disposed above said magnet, a second lever pivoted directly upon and at one end of said armature, one end of said second lever formed into a pawl, said pawl adapted to engage said teeth, whereby when said armature is rocked said first lever will be rocked by said pawl, a pin carried by said second lever, means for holding said first lever in said rocked position, means for moving said second means out of engagement with said first mentioned lever, said second means adapted to engage said pin when it is moved whereby said pawl will be pushed out of engagement with said teeth and said first lever will return to its first position.

2. In a device of the character described, a supporting structure, a lever pivoted upon said supporting structure, teeth formed on one end of said lever, indicating means on the other end of said lever, an electro-magnet, a rocking armature pivoted above said magnet, a second lever pivoted upon and at one end of said armature, a pin on said second lever, one end of said second lever formed into a pawl, said pawl adapted to engage said teeth, said magnet adapted to be energized whereby said armature will be rocked and said pawl will move said first lever into a changed position, a second electro-magnet, a third lever pivoted to said supporting structure, said third lever adapted to engage said teeth and hold said first lever in said changed position, said second magnet adapted to be energized whereby said third lever will be disengaged from said teeth, one end of said third lever adapted to engage said pin while being moved by said second magnet, whereby said pawl is disengaged from said teeth and said first lever moved to its first position.

3. In a device of the character described, a base plate, a standard positioned thereon, a lever having an enlarged end pivoted upon said standard, an indicating plate carried upon the small end of said lever, teeth formed upon the enlarged end of said lever, a vertically disposed electromagnet upon said base plate, a second standard upon said base plate, an armature pivoted intermediate its ends upon said second named standard and adapted to coöperate with said magnet, a second lever pivoted upon one end of said armature and held normally in engagement with said teeth through the medium of a coiled spring, a second electromagnet horizontally disposed upon said second named standard, a second armature pivoted upon said base plate and adapted to coöperate with said second mentioned magnet, said second mentioned armature adapted to hold said first mentioned lever in different positions for the purpose described.

4. In a device of the character described, a base plate having a standard mounted thereon, a lever pivoted intermediate its ends upon said standard, said lever being enlarged at one end and provided with teeth upon said enlargement, the small end of said lever provided with a curved indicating plate, a second standard mounted upon said base plate, a vertically disposed electromagnet positioned upon said base plate, an armature pivotally connected to said second named standard adapted to cooperate with said electromagnet, a second lever pivoted upon one end of said armature and having one end normally in engagement with said teeth, said armature adapted to be rocked through the medium of said electromagnet, thereby moving said first named lever, an electromagnet carried by said second mentioned standard, said second electromagnet being disposed in a horizontal position, a second armature pivoted upon said base plate and provided with a cut out portion near its upper end, said second mentioned armature adapted to coöperate with said horizontally disposed electromagnet, said second mentioned armature adapt-

ed to engage said teeth and hold said first mentioned lever in different positions, for the purpose described.

5. In a device of the character described, a base plate having a standard mounted thereon, a lever having an enlarged end pivoted upon said standard, an indicating plate carried by the smaller end of said lever, teeth formed upon the enlarged end of said lever, an electromagnet disposed vertically upon said base plate, a second standard positioned upon said base plate, an armature pivoted intermediate its ends upon said second named standard, the end of said armature being directly above the core of said electromagnet, means comprising a pin on said second named standard and having resilient connection with one end of said armature adapted to normally hold said armature out of engagement with the core of said magnet, a lever pivoted intermediate its ends upon one end of said armature, a coiled spring connecting one end of said second mentioned lever and said armature, whereby the other end of said second mentioned lever is normally held in engagement with said teeth, a second electromagnet carried by said second mentioned standard and horizontally disposed in relation therewith, a bracket carried by said base plate, a second armature having pivotal connection with said bracket and adapted to coöperate with said second electromagnet, said second mentioned armature provided near its upper end with a vertical cut out portion, the base of said cut out portion adapted to engage said teeth, thereby holding said first mentioned lever in different positions, said second mentioned electromagnet adapted to move said second mentioned armature out of engagement with said teeth, for the purpose described.

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Witnesses:
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