June 28, 1932. J. W. HANSEN 1,864,649

COIN CONTROL CIRCUIT CLOSING APPARATUS

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Fig. 1.

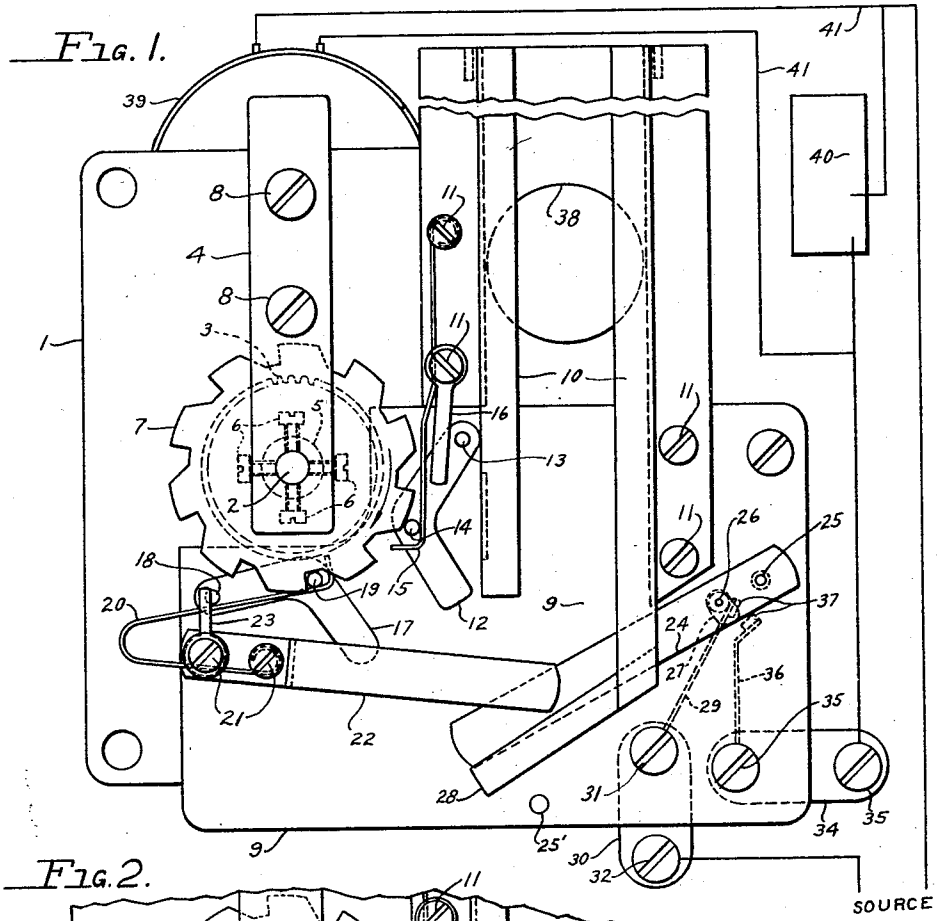
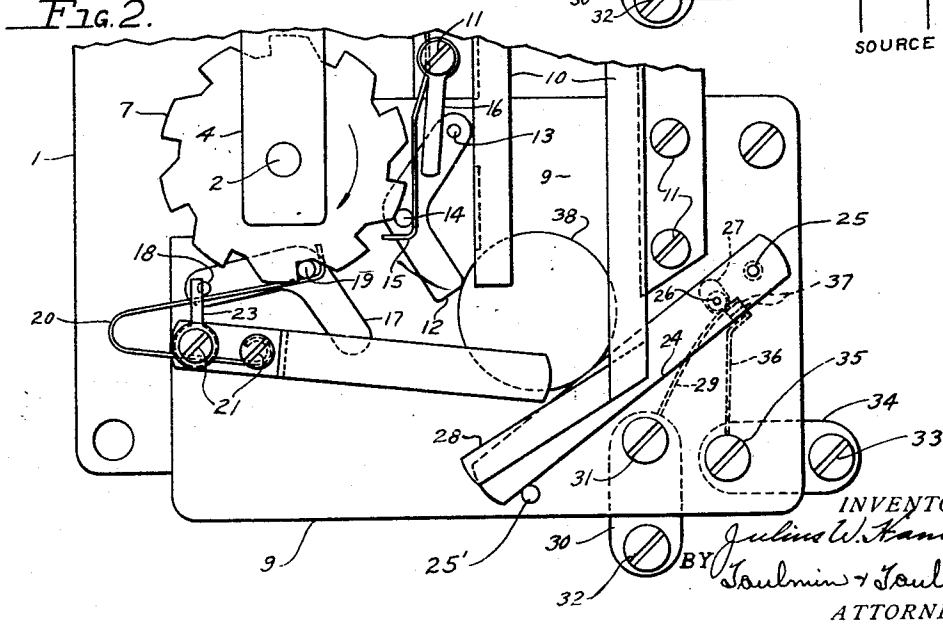


Fig. 2.



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Fig. 3.

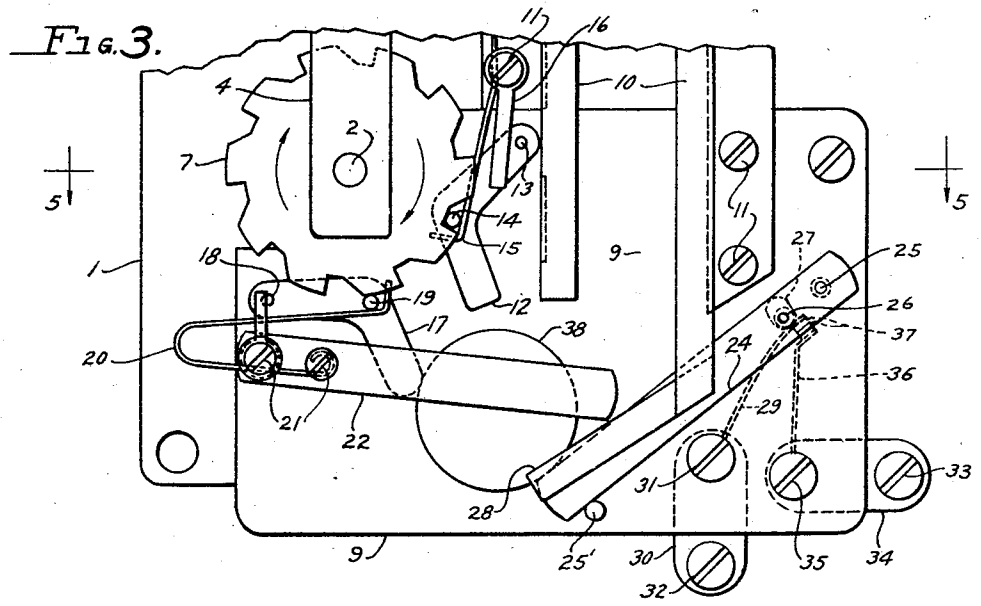


Fig. 4.

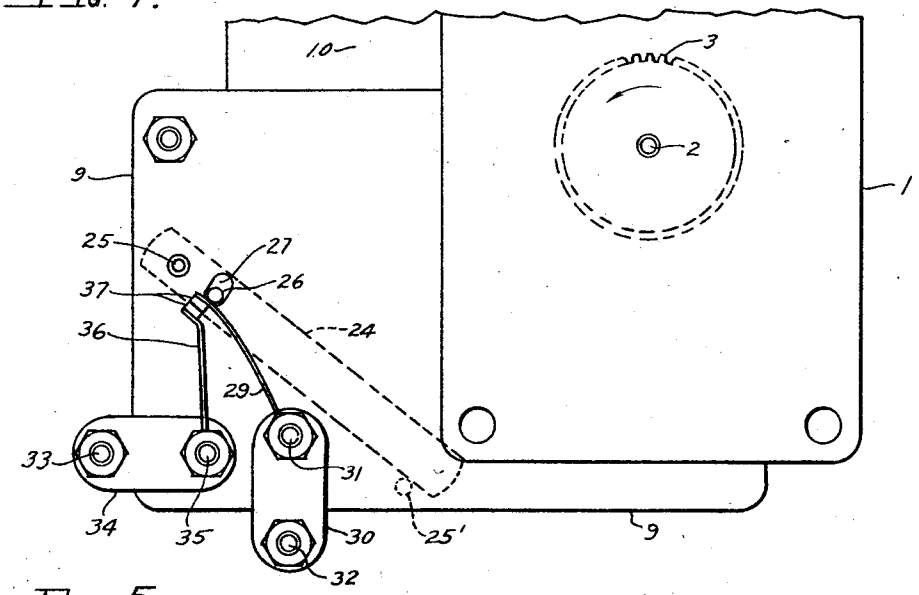
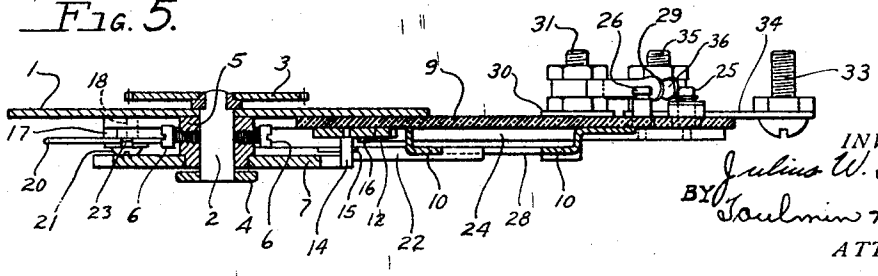


Fig. 5.



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UNITED STATES PATENT OFFICE

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COIN CONTROL CIRCUIT CLOSING APPARATUS

Application filed March 17, 1930. Serial No. 436,309.

This invention relates to improvements in machines for closing electric circuits, and has for its object to provide an apparatus in which the circuit may be closed by means of coins or tokens, or other similar objects, for a predetermined length of time.

It is the object of this invention to provide an apparatus of this kind adapted for use in connection with radios, telephones and various other like equipment.

It is also an object of this invention to provide an apparatus of this type adapted to be used in connection with constant speed motors or clocks. By means of this apparatus a coin is fed into a slot, after which it contacts with a lever making an electrical contact, whereby the motor is operated to rotate a disc for the purpose of removing the coin or token from the contact making lever. The disc that operates to remove the coin or token from the contact making lever may be adjusted to rotate at any rate of speed, usually about one revolution per hour. However, this speed may be varied to suit the needs and conveniences of the operator.

These and other advantages will appear from the description taken in connection with the drawings.

Referring to the drawings:

Figure 1 is a front elevation of the apparatus showing a coin as it is passing through the coin slot and before it contacts with the contact lever.

Figure 2 is a sectional view showing the lower part of the apparatus, and a coin supported by the contact lever so that the electrical circuit is closed.

Figure 3 is a view similar to Figure 2 but showing a coin in the last stages of operation in connection with the contact lever. The coin here is just about ready to be released.

Figure 4 is a rear view of the lower part of the apparatus showing the contacts and how they are operated by the contact lever.

Figure 5 is a section on the line 5—5 of Figure 3.

This apparatus is adapted to be used in connection with radios, telephones and other like equipment for the purpose of making electrical contacts by means of the weight of coin.

The main body or support is a support plate 1 made of some suitable metal, such as brass, or other metal. Extending through the plate is a hole in which there is rotatably mounted a shaft 2, which has on one end thereof a gear 3, which operatively connects the apparatus to either a motor or a clock for the purpose of operating the various parts of this apparatus.

On the opposite side of the support plate from the gear 3 is a support bar 4 which receives the end of the shaft remote from the gear. This bar rotatably supports the shaft. On the shaft between the support plate and the support bar is a hub member 5, held thereto by means of screws 6. Located around the hub and adjacent the support bar is a cam disc 7, which has on the outer periphery thereof teeth, one edge of which is substantially radial while the other is inclined to the radius so that a pin, to be described hereafter, can easily slide over this part of the surface of the teeth. The outer ends of the teeth are elongated for the purpose of holding them a certain length of time against a lever in engagement with a coin.

This support bar 4 is held upon the support plate by means of screws 8, as shown in Figure 1. There is also attached to the support plate an insulating plate 9 composed of some suitable insulating material, such as bakelite or hard rubber, and to this plate of insulating material and to the support plate is attached a coin slot, chute or track 10 by means of screws 11. One side of the chute extends lower than the other side at the end the coin is ejected from the chute and adjacent the short side of the chute, and on the support plate is pivotally mounted a bellcrank lever 12 pivoted at one end 13 to the plate. At the elbow part of this lever is an outwardly extending pin 14 to be engaged by a spring 15 attached to the screws 11 for the purpose of holding the pin 14 in engagement with the teeth of the disc 7.

There is also provided, in connection with one of the screws 11, a clip or bracket 16 for holding the lever 12 in proper position in regard to the teeth of the disc 7. More remote from the end of the chute and to one side is a

second lever 17 shaped similarly to lever 12, and pivoted to the supporting plate at one end 18. This lever has extending therefrom a pin 19 similar to pin 14, adapted to be engaged by the teeth of the disc 7 for the purpose of moving this lever so as to release the coin from the contact lever, to be described.

This lever is held in engagement with the teeth of the disc by means of a spring 20 attached by means of screws 21 to a guide bar 22 and to the supporting plate. This guide bar is used in connection with the coin for the purpose of holding it in the path of the two levers 12 and 17 so that the coin is step by step advanced along the contact lever and released therefrom by the operation of the disc 7. There is also provided, in connection with the lever 17, a clip 23, similar to the clip 16, for the purpose of holding the spring 20 in place and also supporting and guiding the lever 17.

The contact lever is indicated by the numeral 24 and is of any suitable insulating material, similar to that of the insulating plate 9, and is pivoted to this plate at a point 25 adjacent the lower exit end of the coin track or chute. The lower end of the contact lever has a stop 25′ located adjacent the lower edge of the insulating plate. In the insulating plate, just back of the contact plate and near the pivot 25, is a hole 27 to receive a pin 26 projecting rearwardly and through the hole for the purpose of making contact. There is also provided near the lower end of the chute an arm or projection 28 for supporting and guiding and holding in proper position the contact lever 24.

The contact members located on the back of the insulating plate are supported by means of the insulating plate. One of these contact members constitutes a spring 29 bearing against the pin 26 and normally holding the contacts apart. This spring is supported on the insulating plate by means of a screw 31, which also supports a bar 30 having on its other end a binder post 32. A similar binder post 33 is supported by another plate 34 held to the insulating plate by means of a screw 35, which carries a spring 36, on the end of which is another contact member adapted to contact with the contact member on the end of the spring 29. These contact members are indicated by the numeral 37.

The spring 29 is sufficiently strong to hold the lever 24 in the path of the coin and break the contact between the two contact members when the coin is not present, but when the coin is placed within the chute and is resting upon the lever 24 contact is made between the contact members 27 so that the circuit is closed and the motor 39 or clock connected with the apparatus is operated for operating either a radio or some other suitable and desired equipment.

The coin or token used for this purpose is indicated by the numeral 38 and is shown in Figure 1 passing down through the chute. In Figure 2 the coin is shown resting upon the contact lever so that the contact is made and the circuit is closed for the operation of the motor. By the operation of the motor the disc 7 rotates and operates the levers 12 and 17 to ultimately release the coin from the contact lever 24, after which the contact is broken and the motor stops. There is also provided in the circuit a radio 40. This may be any other implement than a radio and may be similarly operated. The conductors extending from the motor to a source of current are indicated by the numeral 41.

The apparatus operates in the following manner. A coin or token 38 is placed within the chute and allowed to press upon the contact lever 24. The weight of the coin upon the contact lever 24 presses the spring 29 by means of the pin 26 extending through a slot in the insulating plate and contacting with the end of the spring 29 adjacent the contact on the end thereof. This brings the two contact members together so that the circuit is closed and the current passes from the source of current, through the motor and through the radio, or other implement in the circuit. This closing of the circuit causes the motor to rotate and operate the disc 7.

The normal position of the disc is shown in Figure 2. In this figure the coin is supported by the lever 12 and the contact lever. After the motor begins to operate the disc rotates clockwise so that the pin 14 rides on the outer periphery of one of the teeth until it drops down beyond the teeth into the notch adjacent thereto by the action of the spring 15. At this time sufficient space is provided between the lever 12 and the lever 24 so that the coin may roll down the lever 24, but by this time lever 17 has been forced outwardly by riding over the inclined edge of another tooth so that it is in the path of the coin and holds the coin as indicated in Figure 3. The further rotation of the cam disc releases the pin 19 from the outer periphery of one of the teeth so that it drops back into another notch, thereby providing space between the end of the lever 17 and the lever 24 so that the coin is released and drops down into a proper receptacle or container.

After the coin or token has been thus released the spring 29 is sufficient to force the lever upwardly and break the contact so that the motor and the radio, or other implement, cease to operate. In order to start the operation another coin or token is placed within the chute to make the contact, after which the usual operation takes place, the gradual release of the coin from the contact lever and the ultimate breaking of the contact so that the parts again cease to operate.

I desire to comprehend within my invention such modifications as may be clearly embraced within my claims and the scope of my invention.

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

1. In a circuit closing apparatus, a normally open electric circuit, a coin chute, a rotatable disc, means operated by the weight of a coin in said chute to close said circuit and cause the rotation of said disc, and a plurality of members operated by said disc, each successively to support the coin on said first means for a definite length of time and then release it, whereby the disc ceases to rotate.

2. In a circuit closing apparatus, a normally open electric circuit, a coin chute, a rotatable disc, lever means operated by the weight of a coin in said chute to close said circuit and cause the rotation of said disc, and a plurality of members operated by said disc, each successively to support the coin on said first-named means for a definite length of time and to release it, whereby the disc ceases to rotate.

3. In a circuit closing apparatus, a normally open electric circuit, a coin chute, a rotatable disc, a lever operated by the weight of a coin in said chute to close said circuit and cause the rotation of said disc, and a pair of lever members operated by said disc, each successively to support the coin on said first-named means for a definite length of time and to release it, whereby the disc ceases to rotate.

4. In a circuit closing apparatus, in combination with a motor having a normally open circuit, a rotatable toothed disc operatively connected to said motor, a coin chute, a lever operated by the weight of a coin in said chute to close said circuit, whereby the disc rotates, and a plurality of members operated by the teeth on said disc to successively support said coin on said lever and release the coin therefrom, whereby the circuit is broken.

5. In a circuit closing apparatus, in combination with a motor having a normally open circuit, a rotatable toothed disc operatively connected to said motor, a coin chute, a lever operated by the weight of a coin in said chute to close said circuit, whereby the disc rotates, and a pair of levers operated by the teeth on said disc to successively support said coin on said first lever and release the coin therefrom, whereby the circuit is broken.

6. In a circuit closing apparatus, in combination with a motor having a normally open circuit, a radio in said circuit, a weight-operated lever adapted to close said circuit, and a pair of levers operated by said motor to successively engage the weight to hold said first lever in circuit-closing position and to release the weight from said lever to open the circuit.

7. In a circuit closing apparatus, in combination with a motor having a normally open circuit, an implement in said circuit to be operated by the current therethrough, a weight-operated lever adapted to close said circuit, a rotatable disc operatively connected to said motor, and means operated by said disc to first engage and hold the weight on said lever for a definite period of time and then release the weight from the lever.

8. In a circuit closing apparatus, in combination with a motor having a normally open circuit, an implement in said circuit to be operated by the current therethrough, a weight-operated lever adapted to close said circuit, a rotatable disc operatively connected to said motor, and a pair of levers operated by said disc to successively engage the weight to hold it on said first lever and release it from said lever, whereby the circuit is again open.

In testimony whereof, I affix my signature.

JULIUS W. HANSEN.