Sept. 19, 1950 R. R. GOEBEL 2,522,755

COIN OPERATED TIMER

Filed March 24, 1947 2 Sheets-Sheet 1

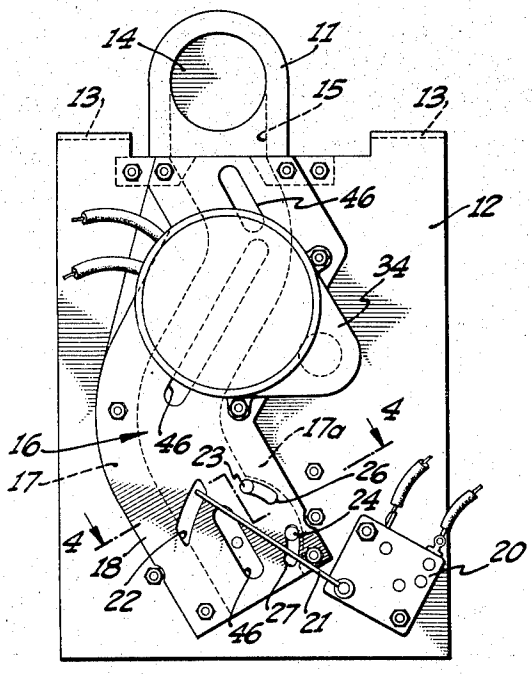


FIG. 2.

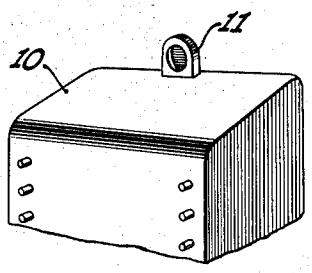


FIG. 1.

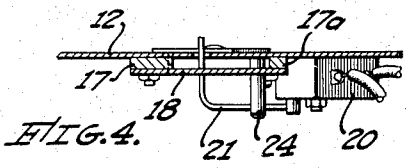


FIG. 4.

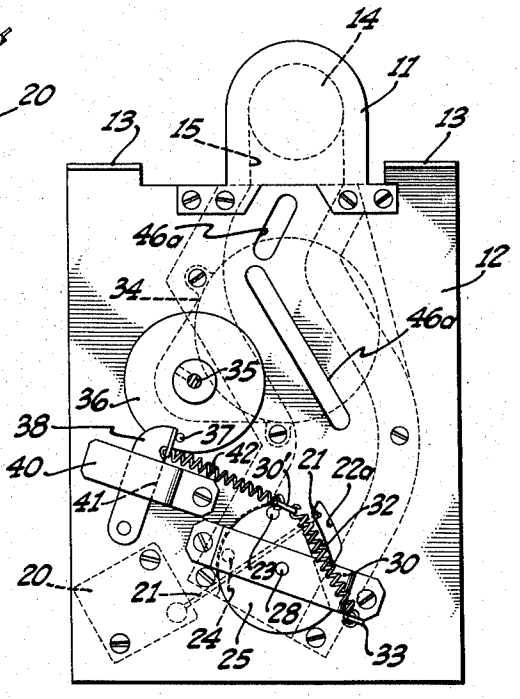


FIG. 3.

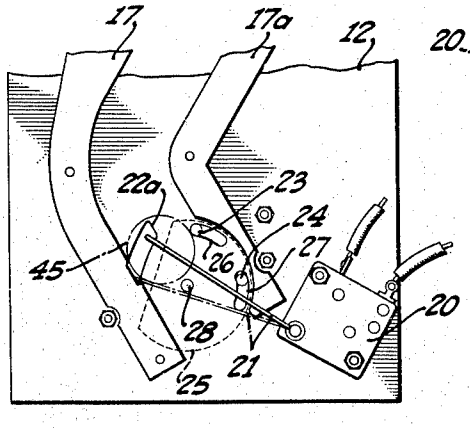


FIG. 5.

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COIN OPERATED TIMER

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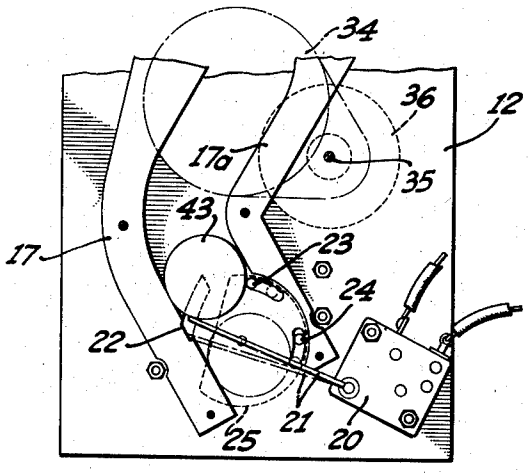


FIG. 6.

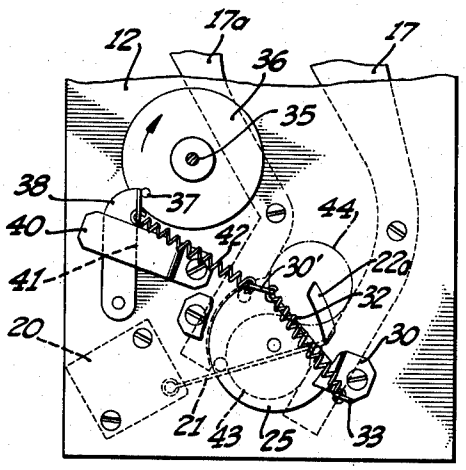


FIG. 7.

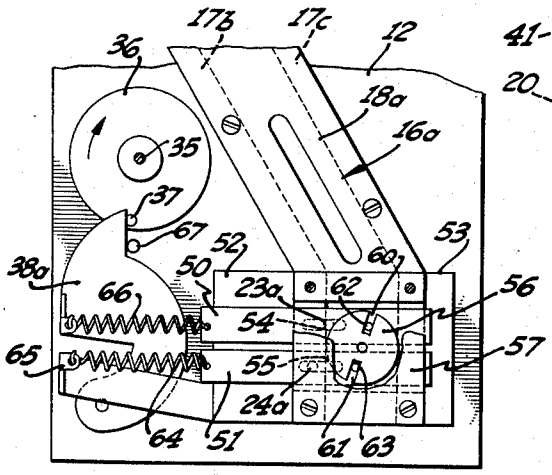


FIG. 8.

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UNITED STATES PATENT OFFICE

2,522,755

COIN-OPERATED TIMER

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Application March 24, 1947, Serial No. 736,796

4 Claims. (Cl. 194—9)

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My invention relates generally to coin operated devices, and more particularly to such devices which are adapted to control the operation of some associated equipment for a predetermined length of time.

While coin operated timers have heretofore been available, these prior devices have generally been subject to the objections that the timing has been inaccurate, that they have been difficult to maintain in working order, or that they are easily operated by a slug or improper coin. Accurate timing may be provided by the selection of a proper timer and its use in a manner so that the load imposed upon it is commensurate with its power. However, the solution of the other problems is somewhat more difficult, and consequently, while many of the previously available timers have been fairly accurate, they have been subject to numerous operating difficulties. In particular, many of these devices have been subject to a tendency to jam, either rendering the associated equipment completely inoperative, or operating it for a longer period of time than intended, thereby decreasing the owner's revenue. While it is understandable that such devices may jam when slugs or improper coins are inserted therein, many of these devices have had a tendency to jam even when a coin of the proper denomination, having no blemishes thereon, has been inserted in the device.

Consequently, it is a major object of my invention to provide a coin operated timing device which has very little tendency to jam, and which, if it does jam, may be very easily cleared.

Another object of my invention is to provide a timing device which will not be injured by such jamming, but which, by the nature of its construction and the arrangement of its parts, may have certain of its parts continue to operate without damage to any of its components.

It is a further object of my invention to provide a timing device of this nature in which the time interval is accurately measured.

Still another object of my invention is to provide a coin operated timing device which is quite critical in its choice of coins, and is not operated by a coin of improper size.

It is a still further object of my invention to provide such a device which may be made almost entirely from stampings, providing an inexpensive and rapid method of construction.

These and other objects and advantages of my invention will become apparent from the following description of a preferred and an optional form thereof, and from the drawings illustrating those forms in which:

Fig. 1 is a perspective view of a control device, such as may be applied to a radio, with my improved timer attached thereto;

Fig. 2 is a front elevational view of the timer

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mechanism with the cover shown in Fig. 1 removed;

Fig. 3 is a rear elevational view of the device shown in Fig. 2;

Fig. 4 is a cross-sectional view of the coin chute taken at 4—4 in Fig. 2;

Fig. 5 is a fragmentary front elevational view with the cover of the coin chute removed, and with a slug therein to indicate the operation of the parts under these conditions;

Fig. 6 is a view similar to Fig. 5 but showing the operation of the parts when a coin of the proper size is inserted in the device;

Fig. 7 is a fragmentary rear elevation showing the different members in their positions corresponding to those shown in Fig. 6; and

Fig. 8 is a fragmentary rear elevational view of an optional form of my device.

Referring now to the drawings and particularly to Figs. 1 to 3 thereof, the numeral 10 indicates generally a cabinet of any suitable style having a coin aperture 11 adapted to receive a coin of pre-determined size, such as a nickel, dime, or quarter to operate some associated equipment (not shown). As indicated in Fig. 2, the coin aperture 11 is mounted at the upper end of a backing plate 12 which may be provided with ears 13 or other suitable means for mounting. It will be understood that any suitable type of coin aperture 11 may be used, the type shown herein having a central opening 14 into which the coin is inserted, and a downwardly extending slot 15 through which the coin falls, edgewise, into the coin controlled mechanism.

At the lower end of the slot 15, I mount a coin chute 16 on the face of the backing plate 12, this chute having offsets therein so that a coin will not drop vertically downward through the chute, but will move from side to side during its downward travel, thereby slowing the coin and preventing the latter from causing any damage to the mechanism by reason of its speed. In addition, the use of this offset passageway prevents the insertion of a wire or other stiff member through the opening 14 and downwardly through the chute 16 to operate the control mechanism without the insertion of the proper coin.

While various methods of construction may be used, I have found that one satisfactory method of constructing the coin chute 16 consists in mounting spacing plates 17 and 17a on the backing plate 12, these spacing plates being the thickness of the coin which is to be used to operate the device, and then mounting a cover plate 18 on them. It will be understood, of course, that the plates 17 and 17a are separated a distance such that the perpendicular distance between them is everywhere at least equal to the diameter of the coin which is intended to operate the device, so that the coin chute 16 will permit the

free and unobstructed passage of the coin from the coin aperture 11 to the control mechanism at the bottom of the chute.

One of the principal components of this control mechanism is an electric switch 20 mounted adjacent the lower end of the coin chute 16, and preferably of the miniature, snap-action type. The switch shown is of the type which is provided with an operating arm 21 which is rotated to operate the switch, but it will become apparent that with minor modifications, a switch may be used which is adapted to be operated by the linear movement of a plunger. However, no matter what type of switch is used, the switch should be operable by a very light pressure, since it is the weight of the coin which acts to move the arm 21. One simple method of accomplishing this movement is to extend the arm 21 parallel to the plane of the chute 16 and form the end of the arm substantially perpendicular to this plane, passing it through properly aligned slots 22 and 22*a* *in* the cover plate 18 and the backing plate 12. As indicated, the free end of the arm 21 is normally located near the center of the chute 16, and by the choice of a proper location of switch 20, the arm 21 will extend toward the switch at an angle to the axis of the chute so that a coin passing therethrough will force the arm to one side, thereby closing the switch. The slots 22 and 22*a* are formed so that the free end of the arm 21 may be moved entirely out of the chute 16 to permit the passage of a coin therethrough, and consequently I provide means to hold the coin in its switch closing position so that more than a momentary contact is obtained.

I have found that one of the most satisfactory methods of holding the coin in the desired position is to provide a coin "gate" including a pair of pins 23 and 24 mounted on a rotatable disc 25 (seen in Fig. 3) to extend through the coin chute 16 and appropriate slots 26 and 27 respectively, in the cover plate 18, and in the backing plate 12. It will become apparent that the slots 26 and 27 may serve to limit the movement of the rotatable disc 25, preventing the latter from turning beyond its normal position. As indicated in Fig. 2, the pins 23 and 24 are both located on the same side of the coin chute 16, and are so positioned that pin 23 extends into the path of the coin when pin 24 is removed therefrom, and pin 23 is removed from the path of the coin when pin 24 is in this path. The rotatable disc 25 is located on the back of the backing plate 12, and is rotatably attached by means of a rivet 28 or other suitable means to a strap or bridging plate 30 which extends beyond the edges of the disc and is suitably attached to the backing plate. A perpendicular ear or projection 30' is formed on the rotatable disc 25, and a spring 32 extends between this ear and a suitable projection 33 on the bridging plate 30 or backing plate 12 to urge the disc in a clockwise direction as seen in Fig. 3, so that pin 23 is urged into its normal position in the path of the coin. By referring to Fig. 6, it will be seen that if a coin of proper size is placed in the coin chute 16, it will come to rest against pin 23, moving the switch arm 21 to the position shown in full outline, and thereby closing the switch 20.

Since the switch 20 is to be closed for only a certain interval of time, provision is made to rotate the plate 25 and release the coin after this pre-determined interval has expired. This is accomplished by providing a timing motor 34 of any suitable type which is adapted to rotate its shaft

at a speed corresponding to the desired time interval. Such motors are well known, and are available with pre-determined shaft speeds which range from one revolution per hour, to a speed of one revolution per minute. Even this speed range may be increased if it is desired, but since the timing motor 34 in and of itself forms no part of my invention except as it may be combined and cooperate with other portions thereof, a further description is not believed necessary.

The timing motor 34 is preferably mounted on the front of the backing plate 12, with its output shaft 35 extending through the plate to the rear thereof. Mounted on the shaft 35 for rotation therewith is a cam 36 which is here shown as a disc having a projection or pin 37 thereon. The cam 36 is rotated in a clockwise direction as viewed in Fig. 3, and an arm 38 is pivotally attached to the backing plate 12 so that its free end may be engaged by the pin 37. A guide plate 40 is firmly attached to the backing plate 12 to prevent the pivoted arm 38 from being displaced from the path of the projection 37, the guide plate having an offset 41 which acts as a stop to limit the clockwise rotation of the pivoted arm. Rotation of the cam 36 in a clockwise direction thus causes the pin 37 to engage the upper or free end of the pivoted arm 38 and rotate the latter in a counterclockwise direction until the pin is disengaged from the end of the arm. A spring 42 extends between the free end of the pivoted arm 38, and the ear or projection 30' on the rotatable plate 25, this spring returning the pivoted arm to its normal position against the offset 41 when the pin 37 has released the free end of the arm.

By connecting the switch 20 in series with the timing motor 34 and connecting both to a source of power, the motor will be started when a coin of the proper denomination, indicated by the numeral 43 in Fig. 6, is placed in the coin chute 16 to close the switch 20. Assuming that the pin 37 has passed beyond the end of the pivoted arm 38, the spring 32 will hold the pin 23 of the rotatable plate 25 in the path of the coin 43 until the timing motor 34 rotates the cam 36 through the major portion of one revolution. The position of the pins 23 and 24 and the coin 43 during this time is indicated in solid outline in Fig. 6. When the cam 36 has been rotated to the point where pin 37 bears against the end of the pivoted arm 38, the parts will be in the position indicated in Fig. 3, with the pin 23 in its coin-obstructing position. Further rotation of the cam 36 by the motor 34 will cause the pin 37 to rotate the pivoted arm 38 away from the coin chute 16, thereby increasing the tension on spring 42 and causing the latter to rotate the disc 25 to the position shown in Fig. 7. At that time, pin 23 has been withdrawn from the path of coin 43, and pin 24 has been moved into that path so that the coin drops to a lower position, preparatory to being dropped into a coin box (not shown). At the same time, pin 24 has been moved against the operating arm 21 of switch 20 to hold the arm in circuit closing position, out of the path of coin 43, so that while the coin is retained within the chute 16, it no longer is directly responsible for the closing of the switch.

As the pin 37 passes beyond the end of the pivoted arm 38, the latter is released and is returned to its original position under the urging of springs 32 and 42. When this occurs, the rotatable plate 25 is returned to the position shown in Fig. 3, and pin 24 is returned to its position where it is retracted from the path of the coin, thereby

releasing the latter and permitting the return of the operating arm 21 of switch 20 to its original position. The circuit controlled by the switch 20 is thus opened and the timing motor 34 is de-energized until another coin is placed within the coin chute 16.

If more than one coin is inserted in the chute 16 at one time, the first coin, 43, will operate the switch and timing mechanism in the manner just described, and when this coin is in its second or lower position, as indicated in Fig. 7, the second coin, 44, rests upon the first coin and is thereby held in a position which is similar to the first position of the first coin. However, when the timing interval is completed and the pivoted arm 38 is released, the first coin 43 is released from the coin chute 16, and the pin 24 is moved away from the operating arm 21 of the switch 20 so that the latter would return to its normal or circuit opening position were it not for the presence of the second coin 44. The latter coin, however, is now held in the coin chute 16 by the pin 23 so that the second coin 44 is now in the same position and acts in the same manner as did the first coin 43 when the latter was in its first position. Consequently, the operating arm 21 of switch 20 will be returned to the position it occupied when coin 43 rested against it, and there will thus be no opening of switch 20 until all the coins in the coin chute 16 have passed through the latter and into the coin box.

When a slug or a coin of the improper denomination is inserted in the coin chute 16, the action will be similar to that illustrated in Fig. 5. It will be apparent that by making the coin opening 14 of the proper size to receive a coin of the intended denomination, larger coins and slugs may be kept out of the device. Consequently, the only problem involved in the rejection of slugs, etc., is to insure that a coin or slug which is too small will not operate the device. When a small slug, herein designated by the numeral 45, is inserted within the coin chute 16, it will of course pass downwardly through the chute and bear against the operating arm 21 of the switch 20 to close the latter. However, the distance between the spacing member 17 and the pin 23 is made large enough so that only coins of the proper dimension will be held by the pin. As a result, the unauthorized coin or slug will move the operating arm 21 of the switch 20 to the position indicated in phantom outline in Fig. 5, and the coin will continue on its way downwardly through the chute 16, permitting the operating arm to be returned to its normal position so that the switch is closed for only a second or so. It is to be realized, of course, that the pins 23 and 24 may be extended into the coin chute 16 any desired distance, and in the figures they have been extended a considerable distance in order that the operation of the device may be clarified. In actual practice, this distance is generally considerably less, and I have built timing devices which will operate properly when a quarter is inserted in the coin chute, but which fail to operate when a franc is inserted in the chute, the latter coin being substantially the same size as a quarter, but passing through the chute and closing the switch 20 for only a second or so as previously mentioned. By using this method of selecting which of the coins will operate the switch 20 in the proper manner, all coins and slugs of improper size will fail to close the switch for any extended period of time, regardless of how these

improper coins and slugs are interspersed with coins of the proper size.

While my improved coin operated timing device is particularly adapted to give long periods of trouble-free service, there is always the possibility that a coin or slug will become jammed in the coin chute 16, and the device will fail to operate in the proper manner. Under these circumstances, it is necessary to remove or otherwise gain access to the device, and manually clear the coin chute. To aid and simplify this task, I have provided slots 46 in the cover plate 18, with corresponding slots 46a in the backing plate 12 so that a tool or instrument may be inserted through one or more of these slots to force the coins through the chute, thereby clearing the latter.

Depending upon the position of the coin or slug which causes the jamming of the device, the rotatable disc 25 may be held against movement at any point in its path. Many prior devices have been unsatisfactory because of the fact that one or more portions of the device are positively driven, and thus when the device is jammed, some portion of the operating mechanism will fail. For example, if the motor which drives the operating members is relatively weak, the motor will be stalled, and it will draw an excessive current which will quickly burn it out. If the motor has sufficient power, it will attempt to drive the associated operating members but these, being jammed, will fail in some manner as by buckling, shearing, etc.

With my improved device, however, it will be noted that the pivoted arm 38 is connected to the rotatable disc 25 by a spring 42 which is sufficiently resilient to permit the pivoted arm to be moved to the farther limit of its travel while the disc remains in its normal position, without imposing any undue stress upon any of the parts. Should the disc 25 be jammed in its second position where the spring 32 is stretched, no damage to any of the parts will result since the spring merely remains in this stretched position so long as the rotatable disc remains in its position. It is possible, of course, that the timing motor 34, the cam 36, or the pivoted arm 38 may become jammed so that the motor will be overloaded and/or some of the parts damaged. However, with proper design and construction of the device, these conditions seldom if ever occur, but the possibility of the jamming of the rotatable disc is an ever-present concern where there is a possibility of slugs being used.

Description of Figure 8

In Fig. 8 I have illustrated an optional form of my device which operates in essentially the same manner but which has a slightly different form of mechanism. In this optional form, I provide a backing plate 12 similar to the backing plate previously described, and mount a timing motor (not shown) on the front thereof as in my preferred form. A cam 36 is mounted on the output shaft of the timing motor, similar to the construction of my preferred form, and a pin 37 is attached to the cam to operate a pivoted member in a manner hereinafter described. A coin chute 16a, similar to the coin chute 16, is mounted on the rear of the backing plate 12, though it will become apparent that this chute, like the one previously described, may be mounted on the front of the backing plate if desired. The coin chute 16a includes spacing members 17b and 17c, joined by a cover plate 18a, and a switch (not

shown) is mounted on the front of the backing plate 12 with its operating arm extending into the coin chute for operation in the manner previously described.

At the lower end of the coin chute 16a I mount a pair of slides 50 and 51 which are parallel to the backing plate 12 and movable in a direction perpendicular to the axis of the coin chute at this point. The slides 50 and 51 are mounted rearwardly of the chute 16a so that they do not interfere with the passage of a coin therethrough, and to support the slides in this position, I mount a pair of spacing plates 52 and 53 which also act as continuations of the spacing members 17b and 17c. A pin 23a, corresponding to the pin 23 of my preferred form, is mounted, on the slide 50 and extends perpendicularly therefrom into the path of a coin passing through the chute 16a. Similarly, a pin 24a is mounted on slide 51 to correspond with pin 24, and in their normal positions, pin 23a is located in the path of a coin passing through the chute, while pin 24a is removed from that path. Slots 54 and 55 are formed in the spacer 52 to receive the pins 23a and 24a, respectively, and the pin 24a preferably extends through the backing plate 12 to engage the operating arm of the switch (not shown) to hold the latter in closed position when this pin is in the coin path.

To insure that slides 50 and 51 simultaneously move in opposite directions when pin 23a is to be removed from the path of a coin, I provide a rotatable disc 56 which is pivotally attached to a cover plate 57 extending over the slides 50 and 51 between the upper and lower edges of spacing members 52 and 53. The disc 56 is pivoted at a point approximately midway between the slides 50 and 51, and is provided with slots 60 and 61 which engage pins 62 and 63 respectively, mounted on the slides 50 and 51. If the pins 62 and 63 are equi-distant from the pivot point of the rotatable disc 56, movement of slide 50 in one direction will produce an equal movement of slide 51 in the opposite direction. Therefore, as pin 23a is moved out of the path of a coin and into the slot 54, pin 24a is simultaneously moved out of slot 55 and into the path of the coin, thus permitting the latter to drop to a lower position, as in my previously described form. Similarly, the removal of pin 24a from the path, into the slot 55 will be accompanied by the movement of pin 23a from the slot 54, into the path of the next coin.

To provide these movements of the slides 50 and 51, I mount a spring 64 on the end of slide 51, and attach the spring to an ear or other suitable projection 65 mounted on or suitably held to the backing plate 12. The spring 64 is in tension, and consequently it urges slide 51 to the left in Fig. 8, thereby causing pin 24a to be located within the slot 55. A similar spring 66 is attached to the end of slide 50, and the other end of this spring is connected to a pivoted arm 38a, which is similar to the arm 38 previously described. A pin or projection 67 may be mounted on the backing plate 12 to limit the normal movement of the pivoted arm 38a, this pin corresponding to the offset 41 which limits the movement of the pivoted arm 38. Rotation of the cam 36 will thus cause the pin 37 to bear against the free end of the pivoted arm 38a, urging the latter away from the coin chute 16a and causing the spring 66 to urge the slide 50 toward the pivoted arm 38a, thereby removing the pin 23a from the coin path and into the slot 54. Simultaneously, the pin 60 turns the rotatable disc 56, and the latter moves the pin 63 so that slide 51 is moved away from the pivoted arm 38a, removing the pin 24a from the slot 55 and inserting it in the path of the coin. When the pin 37 has passed beyond the end of the pivoted arm 38a, the latter is released and the action of the springs 64 and 66 returns the arm and the slides 50 and 51 to their original positions. The pin 24a will bear against the inner end of the slot 55 to limit the movement of slide 51 and determine its normal position, or alternatively, a pin (not shown) may be mounted on the backing plate 12 to bear against the end of the slide to limit its movement. The action of coins in the coin chute 16a is the same as that previously described in connection with my preferred form, and hence will not be repeated here. Furthermore, it will be noted that in both forms the operation of the coin holding and releasing mechanism is controlled by springs so that should some portion of this mechanism be jammed, none of the parts will be damaged and the device may be returned to operative condition by merely clearing the chute 16 or 16a.

It will thus be seen that I have developed a preferred and optional form of a coin operated timing device which is simple and trouble-free in operation, and which may be quickly and easily manufactured in large quantities. The device which is to be operated by this timing mechanism may be a radio, phonograph, motion picture projector, or some non-electrically operated mechanism which may be controlled by some suitable device such as an electrically operated valve. In each case, the device to be controlled may be connected in parallel with the timing motor 34, or a relay may be similarly connected to control the operation. Furthermore, while the cam 36 has been described as having a single pin or projection 37 thereon, a plurality of projections may be spaced around the periphery of the cam so that the timing motor is operated in shorter cycles. Thus, for example, if the cam 36 normally makes one revolution per hour, the use of two equally spaced projections 37 will provide one-half hour operation of the timing motor for each coin. If desired, several of these timing devices may be installed upon a single mechanism, with the devices adapted to receive coins of different denominations, and to operate the mechanism for corresponding periods of time. Furthermore, slug and bent-coin rejectors may be incorporated with this device so that the possibilities of malfunctioning are greatly reduced.

In some applications, the timing feature is not necessary, such as in the so-called "pin-ball" games, and in such cases, the timing motor 34 may be omitted, and the pivoted arm 38, or its equivalent, operated by any rotatable or reciprocatory mechanism.

While I have shown and described a preferred and optional form of my invention, it is to be understood that modifications may be made therein without departing from the spirit of the invention as defined in the claims, and I do not wish to be limited to the particular form or arrangement of parts herein described and shown, except as restricted by the following claims.

I claim:

1. A coin operated timing device which includes: a substantially vertical panel, a coin chute attached to said panel; a timing motor mounted on said panel adjacent said chute; an electric switch mounted on said panel adjacent said chute, having an operating arm extending

into chute for actuation by a coin therein, said switch being electrically connected to said timing motor to control the operation thereof; cam means driven by said timing motor; a pivoted arm mounted on said panel and oscillated by the operation of said cam means; a rotatable disc adjacent said chute; a first projection on said disc, normally extending into said chute to halt the passage of a coin therethrough, but removable therefrom by the rotation of said disc; a second projection on said disc normally out of said chute but movable into the latter to halt the passage of a coin therethrough by the same rotation of said disc which removes said first projection from said chute, said second projection engaging said operating arm of said switch to continue the actuation thereof while said second projection extends into said chute; resilient means urging said rotatable disc to a normal position wherein said first projection extends into said chute and said second projection is removed therefrom; and a second resilient means extending between said pivoted arm and said disc to resiliently urge the rotation of the latter against the urging of said first resilient means when said arm is oscillated.

2. A coin operated timing device which includes: a coin chute; a switch having an operating arm extending substantially perpendicularly through said chute and movable by a coin therein to close said switch, said arm being movable beyond its initial switch closing position, out of the path of said coin while said switch is maintained in closed position; a coin gate below said switch arm and operable, when in a normal position, to maintain a coin in a first position where said switch is held in closed position, and movable to an alternate position to maintain a coin in a second position, below said first position, where said coin does not operate said switch arm, said coin gate including an upper and lower pin mechanically connected together for alternate movement in the plane of said chute into and out of the path of a coin through said chute to control the passage of a coin therethrough, said upper pin being in coin-engaging position and said lower pin being removed from said coin path when said gate is in its normal position, and said lower pin being in coin-engaging position and said upper pin being removed from said coin path when said gate is in its alternate position, said lower pin being positioned to engage said switch arm when said gate is in its alternate position to maintain said switch in closed position until said gate is returned to normal position; and timing means set into operation by the closing of said switch and connected to said coin gate to move the latter from its normal to its alternate position, and to return it to its normal position at the expiration of a predetermined period of time.

3. A timing device as described in claim 2 in which said coin gate includes a disc rotatable about an axis substantially perpendicular to the axis of said chute, said chute having said upper and lower pins mounted thereon for movement therewith, and being resiliently urged toward said normal position at all times, said disc having other resilient means connecting it to said timing means for movement thereby to said alternate position.

4. A coin operated timing device which includes: a coin chute; a first pin extending perpendicularly through said chute; a second pin below said first pin, extending perpendicularly through said chute; means mounting said pins for movement into and out of said chute and cooperating with said pins to form a coin gate, said means including a disc rotatable about an axis substantially perpendicular to the axis of said coin chute, said pins being located on one side of said disc so that as one of said pins is moved into said chute, the other is moved out, said gate having a normal position with said first pin in said chute and said second pin out of said chute to retain a coin in a first position, and movable to an alternate position with said first pin out of said chute and said second pin in said chute to retain said coin in a second, lower position; a switch having an operating arm extending perpendicularly through said chute and movable by a coin in said first position to close said switch, said second pin bearing against said arm to maintain said switch closed when said coin gate is in said alternate position; timing means adapted to be energized by the closure of said switch; and reciprocating means driven by said timing means and connected to said coin gate to move the latter from its normal position to said alternate position and then return it.

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Certificate of Correction

Patent No. 2,522,755 September 19, 1950

RAYMOND R. GOEBEL

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows:

Column 9, line 1, for the words "into chute" read *into said chute*; column 10, line 3, for "chute", second occurrence, read *disc*;

and that the said Letters Patent should be read as corrected above, so that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 5th day of December, A. D. 1950.

[SEAL]

THOMAS F. MURPHY,
Assistant Commissioner of Patents.